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scil SPOTCHEM™ EZ Chemistry Analyzer

Operations Manual

For questions or troubleshooting, contact scil toll free at 877-724-5838

Introduction

The scil Spotchem EZ is an automated biochemical analyzer using a dry chemistry system.

This manual contains outlines, instructions for the operation, maintenance and troubleshooting for the scil Spotchem EZ. Before operating the analyzer, read this manual carefully.

⚠WARNING

- **Always be careful when handling blood samples or waste reagent strips. Incorrect or imprecise procedures may result in exposure to pathogenic microbes.**
- **This analyzer must only be operated by those trained in proper procedures for clinical testing and handling of biological samples. Anyone who operates the analyzer for the first time must be assisted by a trained person.**
- **Discard used samples, cups and tips according to your local regulations on biological waste.**

Contact scil technical services before using any cleaning or decontamination methods on the scil Spotchem EZ that aren't recommended in this user's manual to avoid damage to the unit.

Caution Marks

Pay careful attention to these caution marks in this Operating Manual.

■ **Regarding preventing accident resulting in injury.**

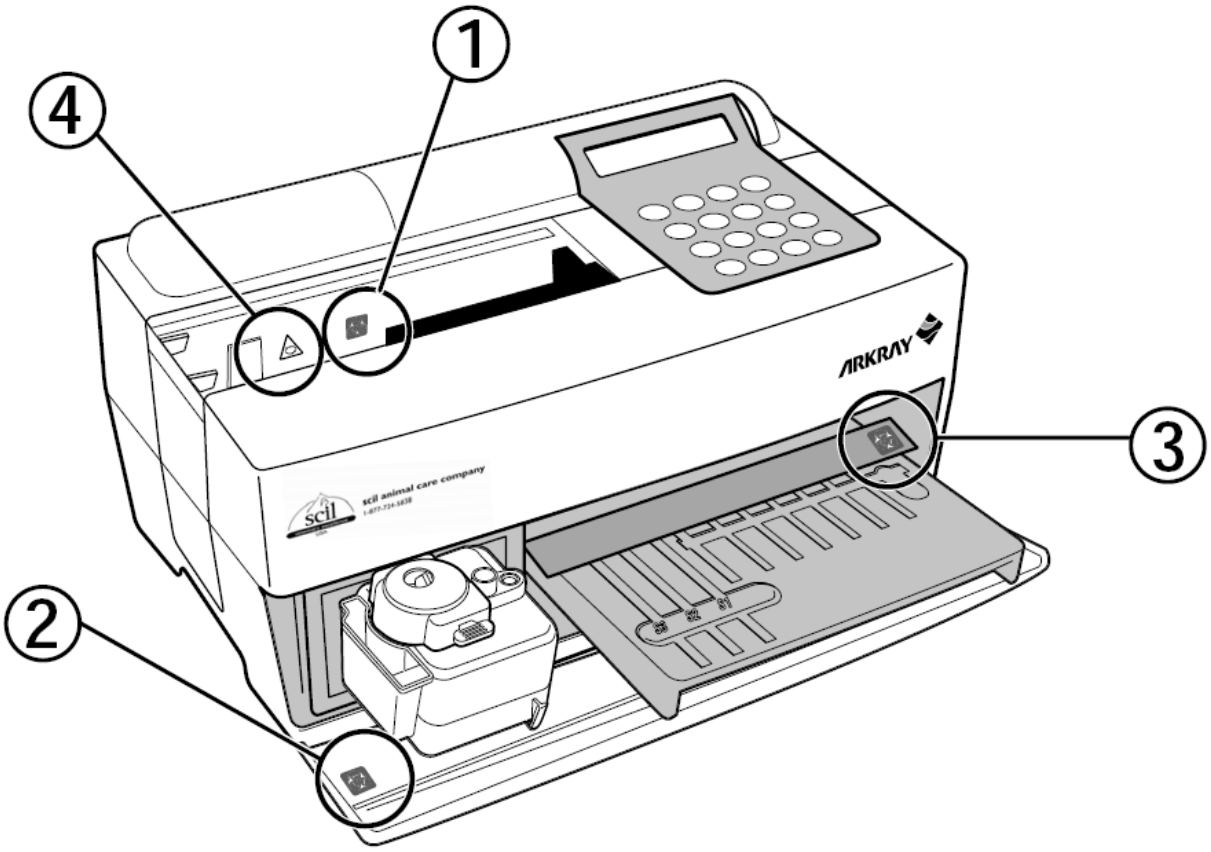
⚠WARNING	**To prevent infection of yourself or others from pathogenic microbes, follow the instructions given herein.**
⚠CAUTION	**To prevent injuries to yourself or others, or material damages, follow the instructions described.**

■ **Regarding unit performance and preventing damage.**

IMPORTANT	**Failure to follow the instructions may lead to incorrect results.**
NOTE	**To prevent damage to the unit and assist you in making best use of the capabilities of the analyzer, additional explanations and notes are provided herein.**
→	**Reference information on operation, additional explanations and related functions are provided herein.**

Caution Labels

Caution Labels are adhered to the scil Spotchem EZ to prevent accidents. The descriptions are given on the following pages.



①,②,③ **Biohazard cautions.**
Wear protective gloves to prevent exposure to pathogenic microbes.

④ **The centrifuge spins at high speed.**
Keep your hands off when mesurement is in process.

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Chapter 1
INTRODUCTION

This chapter contains the information on the functions and measurement principles of the scil Spotchem EZ.

1-1 Specifications

1-1-1 Features
1-1-2 Measurement principles
1-1-3 Specifications

1-2 Shipping Carton

1-2-1 Analyzer
1-2-2 Accessories

1-3 Parts Description and Function

1-3-1 Front of the analyzer
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1-4 Setting up the Analyzer

1-4-1 Cautions
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1-4-3 First operation after setting up

1-1 Specifications

1-1-1 Features

■ Compact, Lightweight Design

The footprint of the scil Spotchem EZ is as small as that of a notebook computer. It weighs only 5 kg and can be easily carried by one person. The small unit contains various components such as a display, printer, 1-sample centrifuge and automatic tip disposal mechanism. No water supply or drainage system is required.

■ Energy-Saving Design

Power consumption per 1 hour is approximately 50 W on average (AC 100V, 60Hz when continuous measurements are conducted).

■ Automatic Sampling

The analyzer automatically absorbs samples set on the Centrifuge-equipped Multi Rack and drops them on reagent strips. Manual operation is not necessary, so that the sampling amount becomes constant and stable measurement results can be obtained.

■ Built-in Centrifuge

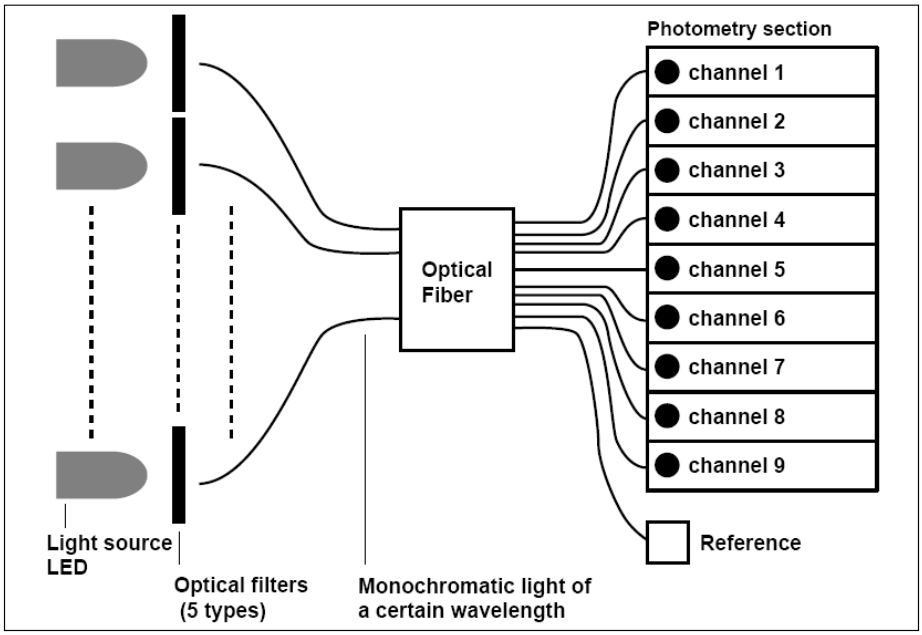
The analyzer has a built-in centrifuge for 1 patient sample. By placing the whole blood sample in the centrifuge tube and setting it on the Centrifuge-equipped Multi Rack, the operation, centrifugation→ suction→sampling is conducted automatically. This saves centrifugation of whole blood samples before measurement.

■ Simple Calibration Using Magnetic Cards

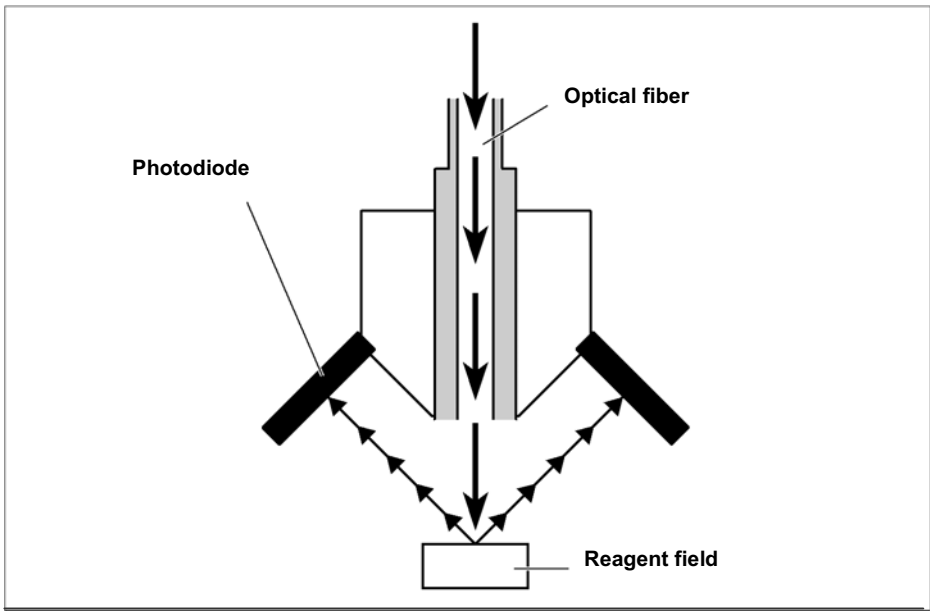
Calibration is achieved using the magnetic cards provided with the Reagent Strips. By inserting magnetic cards into the magnetic card reader, differences between reagent strip lot number and daily deviations are automatically calibrated.

1-1-2 Measurement principles

Light emitted from the LED becomes monochromatic light of a certain wavelength after passing through an optical fiber (Five different types of optical filters are provided, and the optimum wavelength is selected for each test item). Monochromatic light is separated and transmitted to the photometry section of each channel by ten optical fibers.



In each photometry section, the monochromatic light transmitted by the optical fibers is irradiated on the reagent fields, which has a color reaction after sampling. Its reflected light is read with 2 photodiodes, and the system calculates measurement results by end-point assay (EPA) or reaction-rate assay (RRA).



1-1-3 Specifications

Sample	Serum, Plasma, Whole blood
Measurement Item	General biochemical measurement items, 21 parameters
Measurement Wavelength	5 wavelengths (405, 550, 575, 610 and 820 nm)
Measurement Principle	Optical measurement of reflection intensity of reagent color reaction
Measurement Range	Set for each measurement item
Reagent Strip	scil SPOTCHEM EZ Reagent Strip
Processing Speed	48 samples per hour maximum based on parameters chosen
Minimum Sample Volume	6 µL × number of parameters being measured + 38µL (serum, plasma)
Sample Consumption	4-6 µL per parameter measurement (serum, plasma)
Sample Container	Whole blood: centrifuge tube (Orange cap) Serum, plasma: exclusive serum sample tube (Blue cap)
Simultaneous Measurement	3 Single and/or 1 Multi Reagent Strip for maximum of 9 test items at once
Reagent Reaction Temp	37˚C/ 98.6˚F
Light source	LED and Interference filter
Calibration Method	Calibration by magnetic card (Reagent Card)
Result Storage Memory	100 tests
Display	20 digits × 2 lines LCD
Built-in Printer	36-character thermal printer (58 mm width)
External Output	RS-232C interface
Transmission Method	Single or Two-way Transmission
Transmission Rate	300, 600, 1200, 2400, 4800, 9600bps
Operating Conditions	Temperature: 10 – 30˚C/50-86˚F , Humidity: 20-80% (Non-condensing)
Power supply	12Vdc (to Analyzer) 100-120/220-240Vac 50/60Hz (to AC adapter)
Power Input	Max. 100VA
Dimensions	338 mm (W) × 203 mm (D) × 167 mm (H)
Weight	Approximately 5.4 kg
Altitude	To be used up to 2000m
Power Supply Cord	Flexible Power Supply Cord for US:SV,SVT

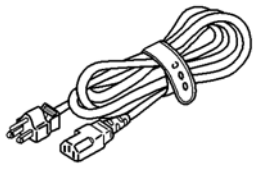
1-2 Shipping Carton Contents

1-2-1 Analyzer

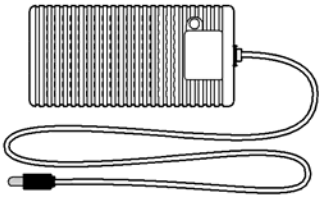
Open the package and confirm that all items are included.

1. scil Spotchem EZ Analyzer (S-4430)

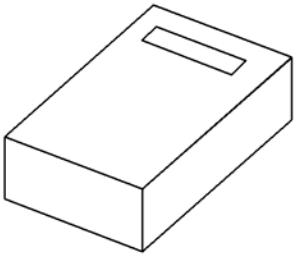
2. Power cord



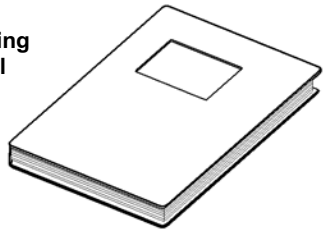
3. AC adapter



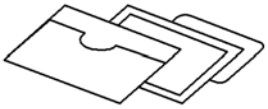
4. Starter Kit



5. Operating Manual

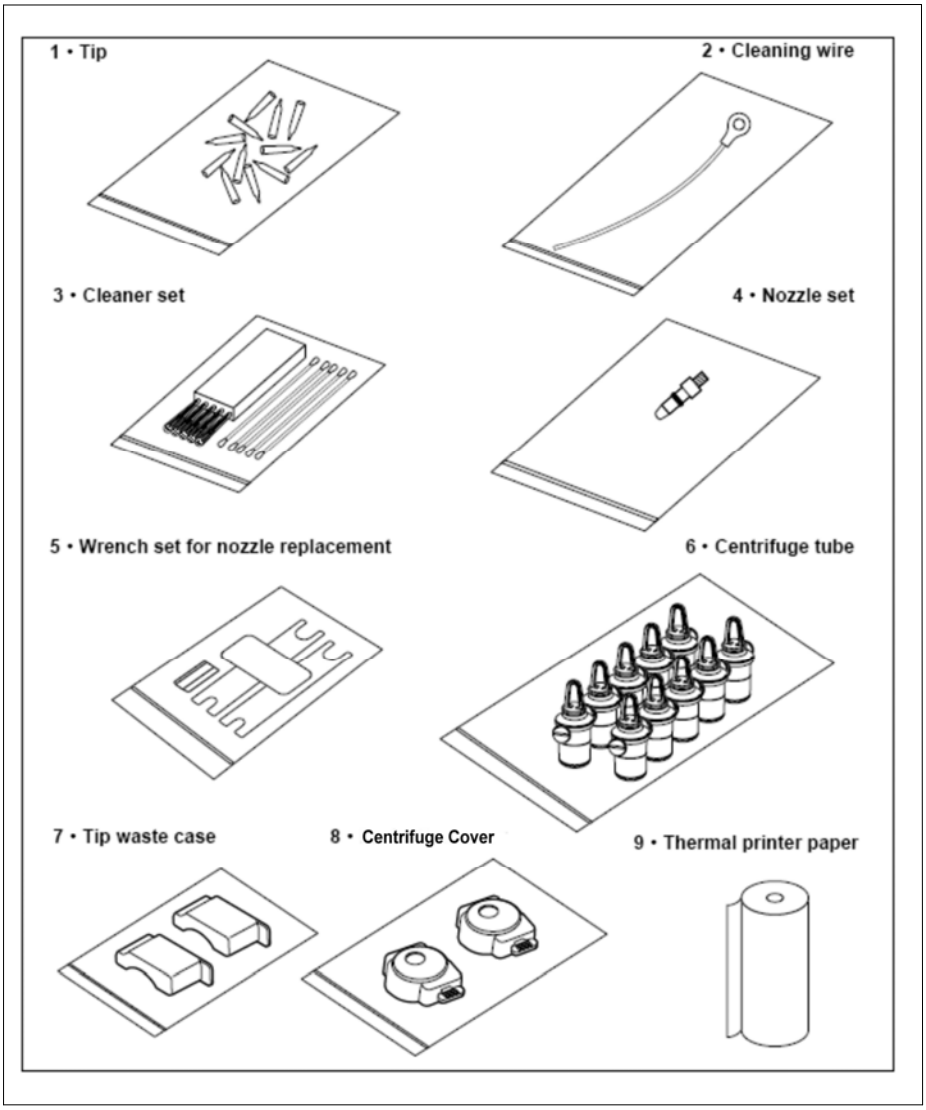


6. Additional Support Documents



1-2-2 Accessories

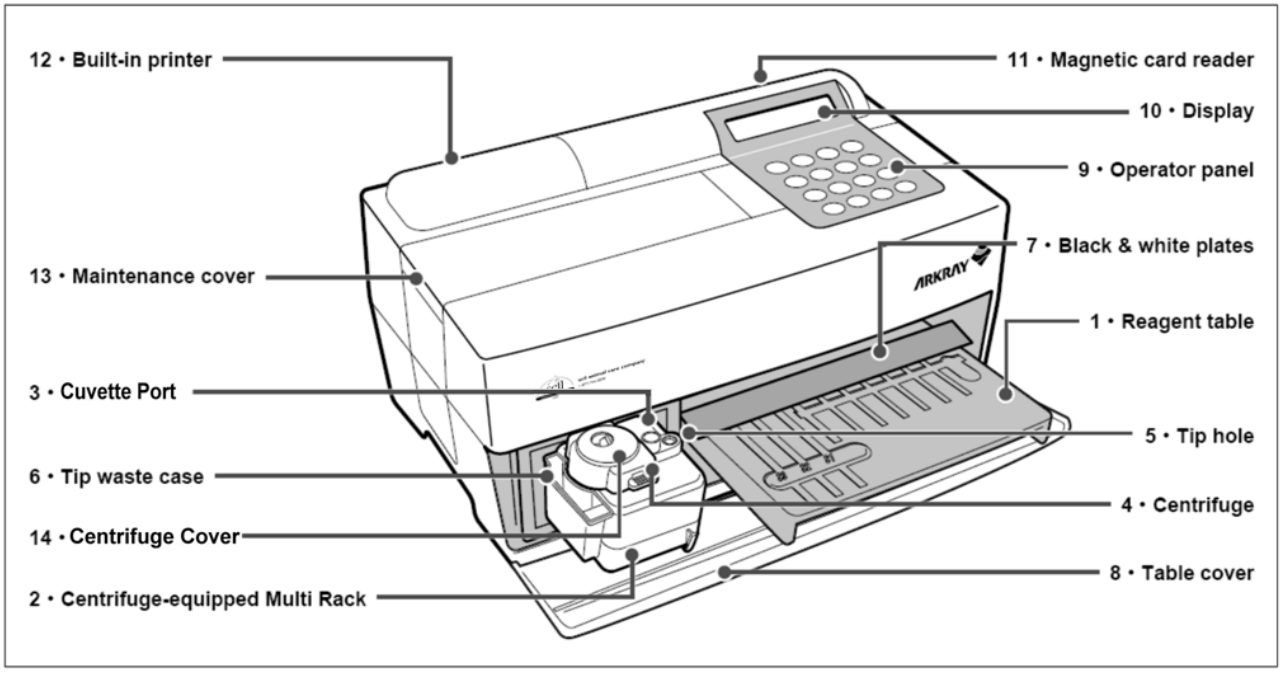
STARTER KIT: Included with analyzer


1 • Tip
2 • Cleaning wire
3 • Cleaner set
4 • Nozzle set
5 • Wrench set for nozzle replacement
6 • Centrifuge tube
7 • Tip waste case
8 • Centrifuge Cover
9 • Thermal printer paper

No.	Item	Description	Qty.
1	Pipette Tips	10 tips	1 Set
2	Cleaning wire	Nozzle cleaning	1 Set
3	Cleaner set	Brush, Cotton swab	1 Set
4	Nozzle set (EZ)	Nozzle with O-ring	1 Set
5	Wrench set for nozzle replacement	2 Wrench, Adapter	1 Set
6	Centrifuge tube	10 pieces	1 Set
7	Tip waste case	2 pieces	1 Set
8	Centrifuge cover	2 pieces	1 Set
9	Thermal printer paper	width 58 mm	1 Set

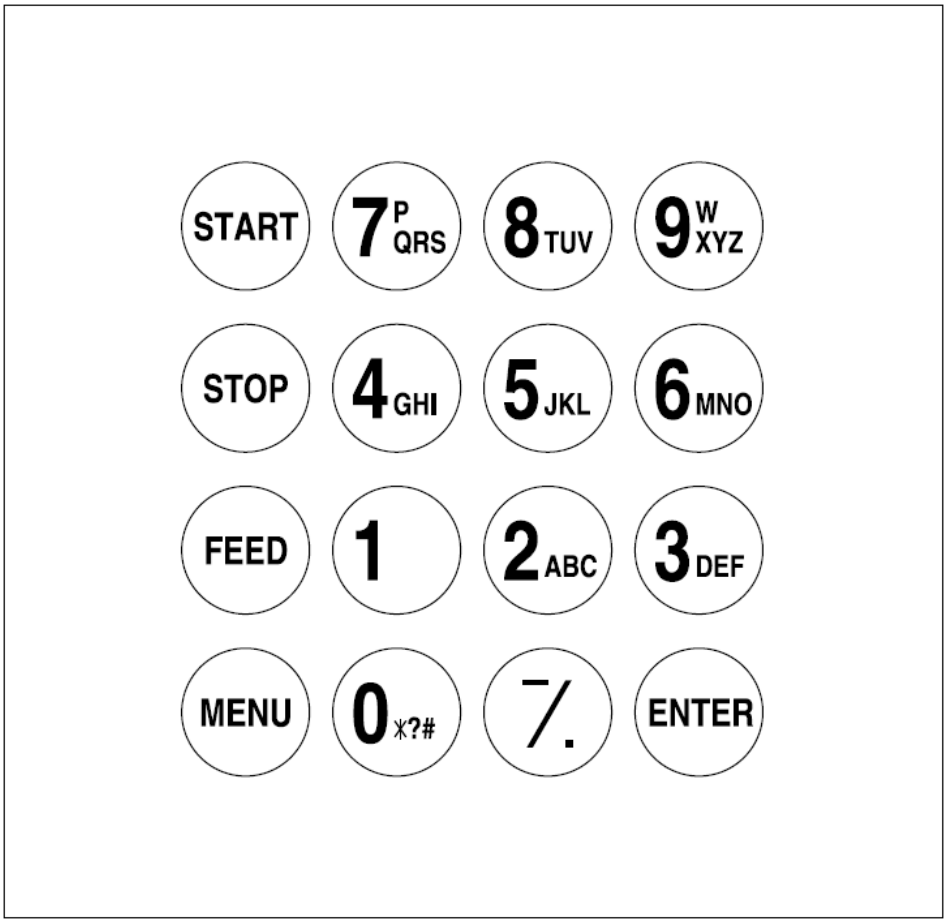
1-3 Parts Description and Function

1-3-1 Front of the analyzer


12 • Built-in printer
11 • Magnetic card reader
10 • Display
9 • Operator panel
7 • Black & white plates
13 • Maintenance cover
1 • Reagent table
3 • Cuvette Port
5 • Tip hole
6 • Tip waste case
4 • Centrifuge
14 • Centrifuge Cover
8 • Table cover
2 • Centrifuge-equipped Multi Rack
ARKRAY

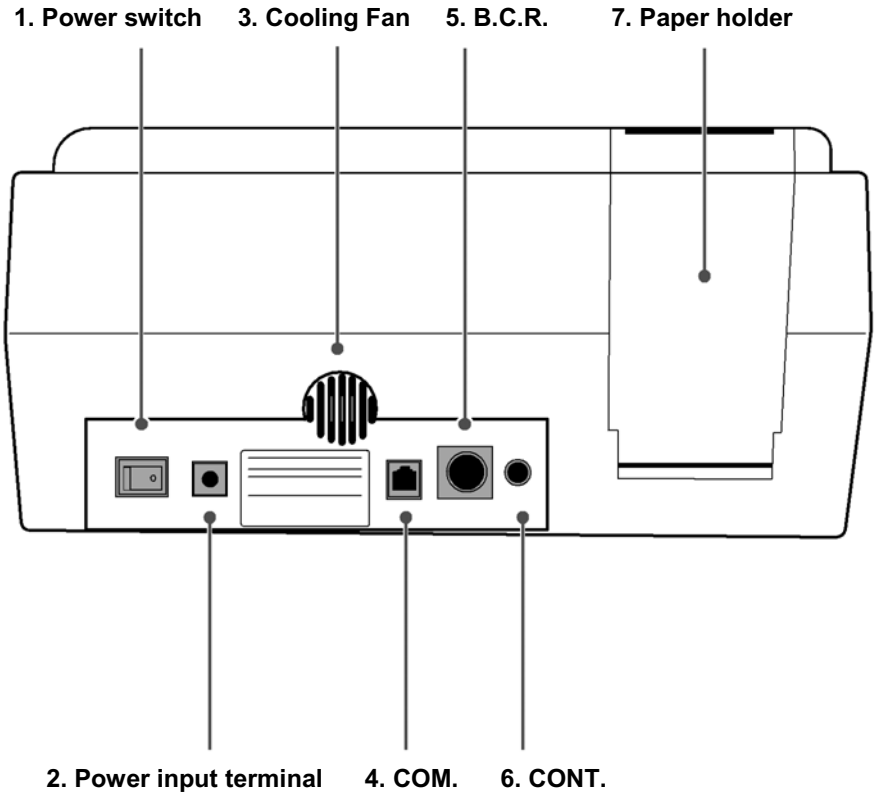
NO.	Item	Function
1	Reagent Table	For setting the Reagent Strip. Temperature is kept at 37˚C/98.6˚F for the required reagent reaction.
2	Centrifuge-equipped Multi Rack	For setting the samples and tips. The centrifuge for 1 sample is built in.
3	Cuvette Port	For setting the serum/plasma samples.
4	Centrifuge	For setting the whole blood samples that have not been centrifuged.
5	Tip hole	For setting tips.
6	Tip waste case	The container for used tips automatically discarded after sampling. Filled with 5 measurements.
7	Black & white plates	The standard reflection plates used for measurement of reflectivity.
8	Table cover	Blocks light from entering. Slides forward to expose centrifuge and reagent table.
9	Operator panel	For starting or stopping measurement and entering IDs.
10	Display	Displays information such as operating state of the unit and error messages.
11	Magnetic card reader	For inserting magnetic cards: Reagent Card and Calibration Cards.
12	Built-in printer	Thermal-type printer. Prints out measurement results and setting conditions.
13	Maintenance cover	Protects the Nozzle Driving Units. Also prevents the operator from contacting the nozzle during measurement. There are top and side covers.
14	Centrifuge cover	Prevents the operator from contacting the Centrifuge Tube. Also protects spilling of samples.

1-3-2 Operator panel



Item	Function
START	Starts measurement. Select “Yes” from the Yes/No option.
STOP	Stops measurement. Select “No” from the Yes/No option. Cancels entry.
FEED	Feeds the built-in printer with paper while pressed.
MENU	Switches the page on each menu display.
0~9 (ten key)	Selects the menu number. Enter numerical values and ID.
-/.(hyphen/period)	Selects item, move cursor , switch the page on the display, and enter minus sign and decimal point.
ENTER	Determines the entry. Check message to proceed to the operation.

1-3-3 Rear of the analyzer



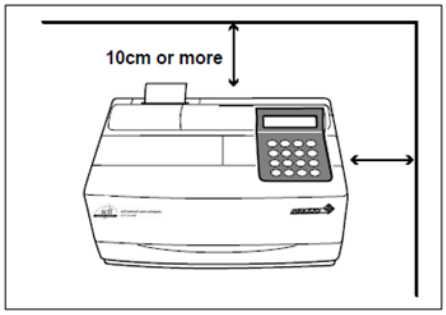
NO.	Item	Function
1	Power switch	For turning on and off the power supply to the analyzer.
2	Power input terminal	For the supplied AC adapter.
3	Cooling Fan	For Ventilating heated air in the unit to prevent overheating.
4	COM.	For the cable of the optional external device.
5	B.C.R.	Jack for the bar-code reader (option).
6	CONT.	For adjusting screen contrast. Turning clockwise to make the screen darker, counterclockwise makes it brighter.
7	Paper holder	For setting thermal printer paper.

1-4 Setting up the Analyzer

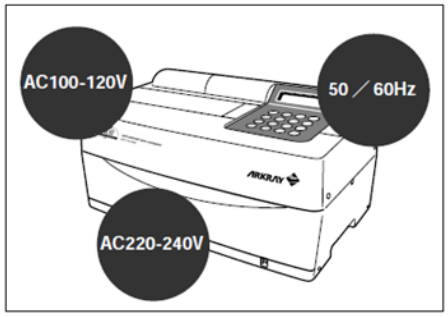
1-4-1 Cautions

⚠CAUTION

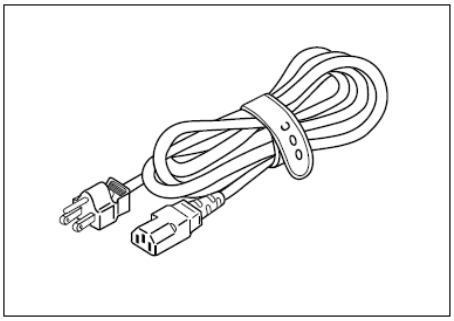
Before setting up the analyzer, read the following notes and always take proper safety precautions.



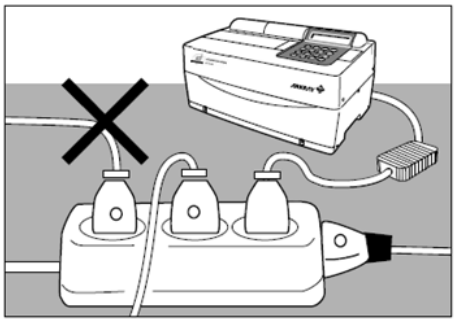
- Allow a space of 10 cm or more between the rear of the analyzer and the wall. Failure to do so may cause overheating. Excessive load on the cable connection may cause fire or incorrect measurement results.



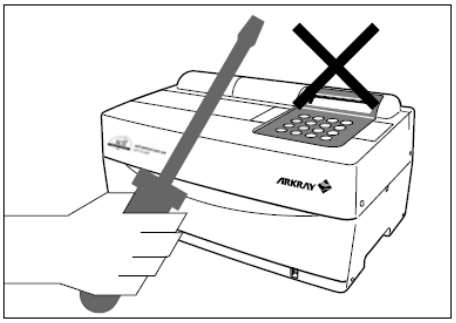
- Operate the analyzer with power of the correct voltage and frequency. Otherwise fire or damage may result.



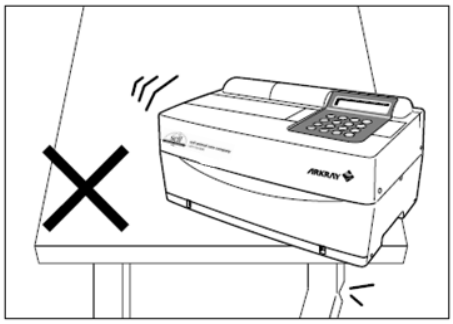
- To avoid electric shock and/or fire, use the attached power cord to connect with a power outlet. For questions, contact scil technical services.



- Connect the power plug directly to an outlet, not via an extension cord or power strip. The power supply for the analyzer is 100 VA. Before turning on the power switch, make sure that the total input of devices connected to a receptacle of the same circuit doesn't exceed 1500 VA (100V, 15A).



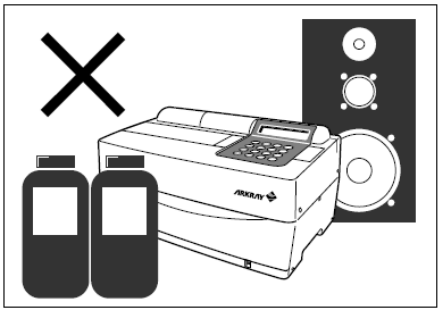
- Do NOT unnecessarily disassemble or modify the analyzer. Such actions will nullify the warranty, and could cause operator injury or damage to the analyzer.



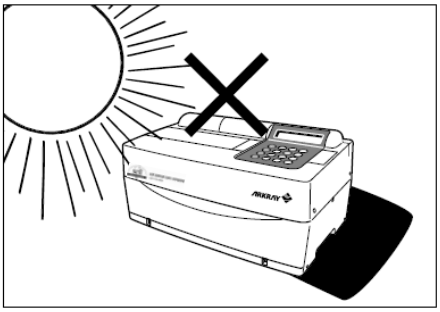
- Place the analyzer on a stable and level surface free of vibration and risk of falling. Failure to do so may damage the analyzer, correct measurement results may not be obtained, and injury may result.

⚠CAUTION

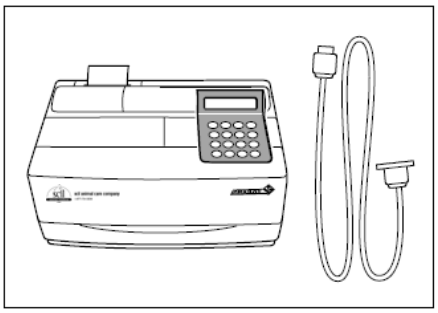
Before setting up the analyzer, read the following notes and always take proper safety precautions.



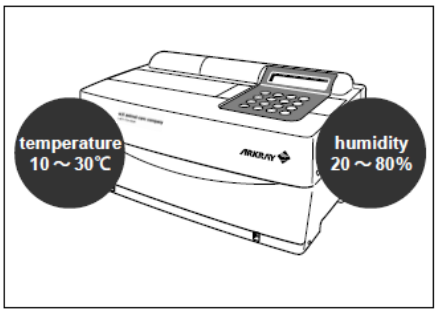
- DO NOT set up the analyzer where chemicals are stored nearby, or where corrosive gases or electrical noise are generated. They may damage the analyzer and result in malfunctions or incorrect measurements.



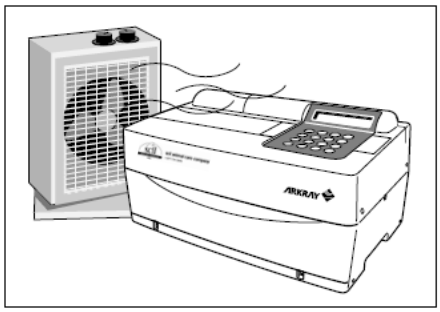
- Avoid exposing the analyzer to direct sunlight, condensation and wind. Correct measurement results may not be obtained and malfunction of the analyzer could occur.



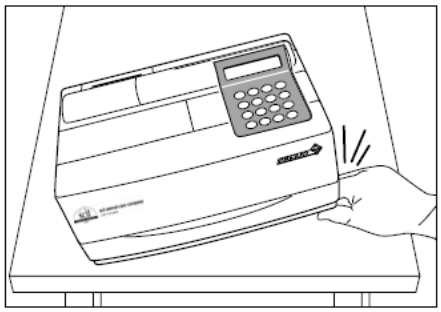
- To connect the analyzer to external devices, use proper cables to avoid electrical shock and/or fire. For details, contact scil technical services.



- Place the analyzer in a room with temperatures between 10-30ºC/50-86ºF with humidity 20-80%. Otherwise incorrect measurements may occur.



- Make sure that the room is well ventilated where carbon dioxide is generated. This is because the pH of the reagent strips, which use alkaline reaction reagents, decreases under the influence of carbon dioxide and correct measurements may not be obtained.



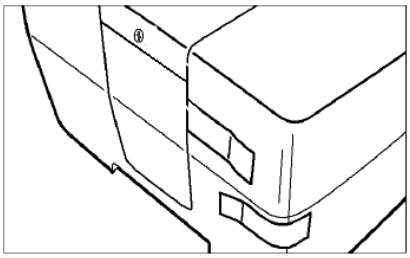
- Be careful when moving analyzer not to injure hands.

1-4-2 Setting up the scil Spotchem EZ

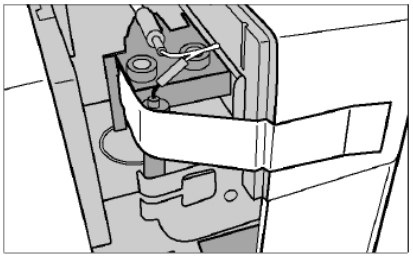
The parts in the analyzer are secured firmly in order to prevent damage during transportation. Remove the securing tapes before setting up the analyzer. Read 1-4-1 “Cautions on installation” carefully before setting up the analyzer.

1. Remove the securing tape.

- Remove the tape securing the table cover during transit.

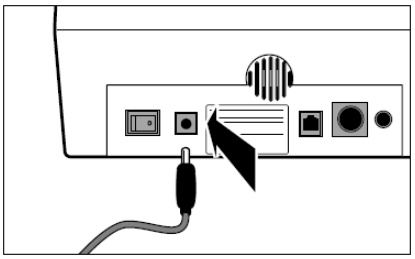


- Open the maintenance covers and remove the tape securing the nozzle.
- Reattach the maintenance covers.



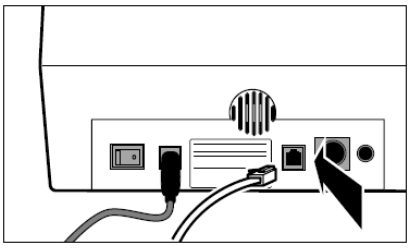
2. Connect the power cord.

- Make sure that the power switch on the rear of the analyzer is OFF.
- Connect the AC adapter to the receptacle on the rear panel of the analyzer, and plug the other end of the cord into the AC outlet.



3. Connecting an external device.

- When using an external device, connect the exclusive connecting cable to the COM port on the rear panel of the analyzer.

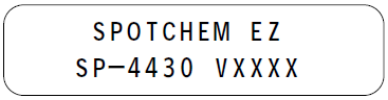


1-4-3 First operation after setting up

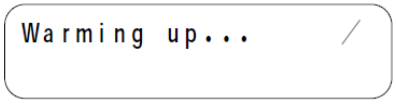
This section explains the way to load thermal printer paper, and set data and time after turning on the power switch.

1. Turn on the power.

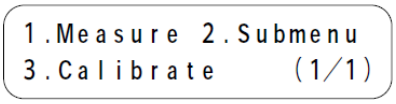
- Turn on the power switch on the rear panel of the analyzer.



- After the system analyzer name and system Version are displayed, warm-up starts.



- Warm up is completed in about 10 minutes. The MAIN MENU is displayed as shown to the right.



2. Set the thermal printer paper.

- Set the attached thermal printer paper (See 4-3-1 “Thermal printer paper replacement”).

3. Confirm the time and date.

- Set the date and time (see “3-6 Built-in Clock Adjustment”).

IMPORTANT

If the date is not set correctly, correct measurement results may not be obtained and an error may occur.

Chapter 2
MEASUREMENT

This chapter describes the outline and operating procedures of measurement and calibration.

2-1 Outline of Measurement

2-1-1 scil SPOTCHEM EZ Reagent Strips
2-1-2 Normal measurement

2-2 Handling Samples and Reagents

2-2-1 Cautions
2-2-2 Handling samples
2-2-3 Handling Reagent Strips
2-2-4 Handling magnetic cards
2-2-5 Handling tips
2-2-6 Handling centrifuges

2-3 Preparation for Measurement

2-3-1 Preparation
2-3-2 Startup
2-3-3 Checks before measurement
2-3-4 Preparing samples

2-4 Measurement

2-4-1 Normal measurement

2-5 Calibration

2-5-1 Overview of calibration
2-5-2 Calibration by magnetic card

2-6 Interpreting measurement results

2-6-1 Printing normal measurement results

2-1 Outline of Measurement

2-1-1 scil SPOTCHEM EZ Reagent Strips

scil SPOTCHEM EZ Reagent Strips must be used with this analyzer. There are two types of scil SPOTCHEM EZ Reagent Strips. Use the correct type of strips for the measurement purpose.

- **Multi Reagent Strip**

  The Panel V reagent strip has 6 reagent fields for analyzing multiple parameters at one time on one sample.

Multi Reagent Strip

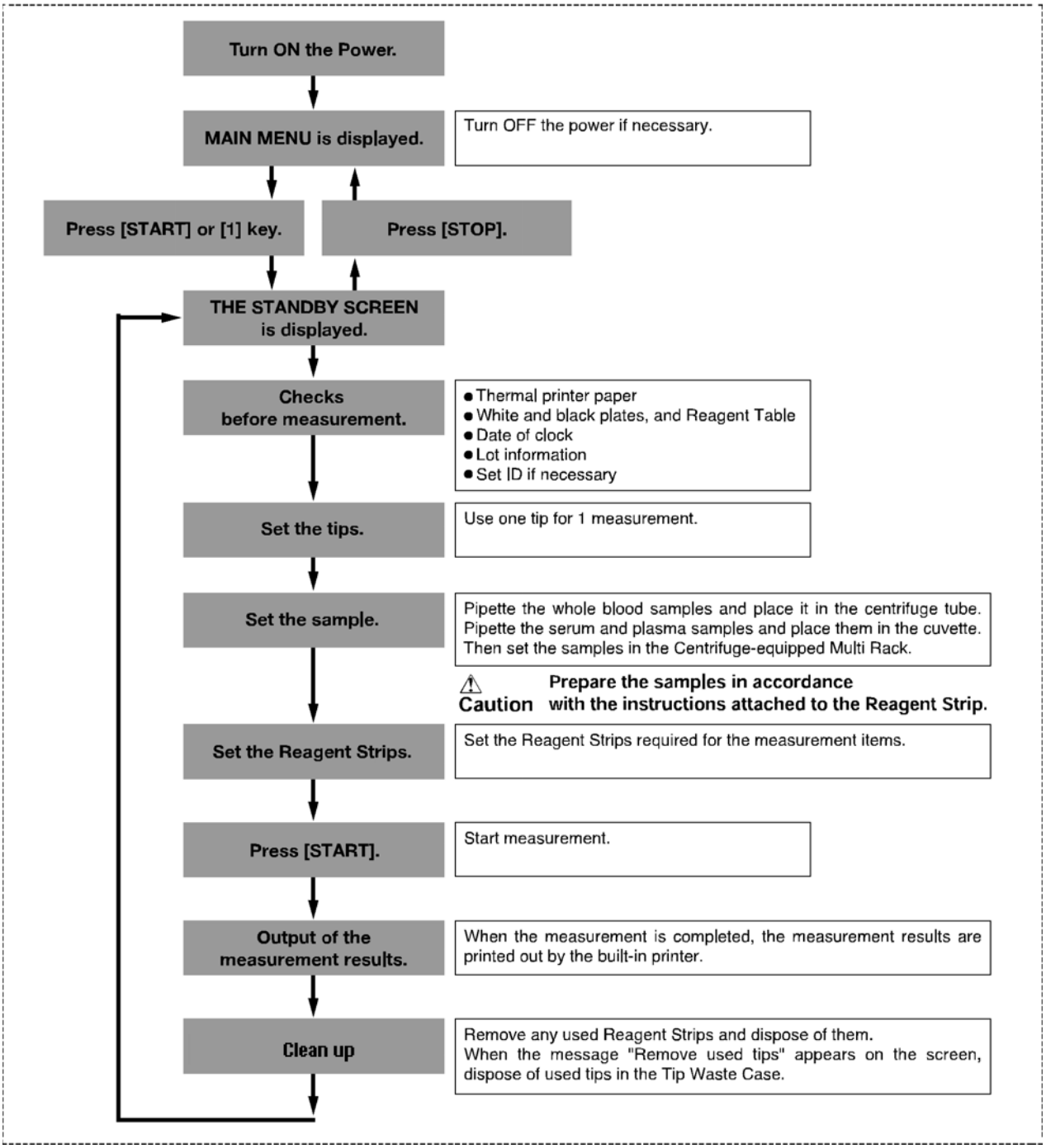
- **Single Reagent Strip**

  The single reagent strip has only one reagent field for analyzing a single parameter.

Single Reagent Strips

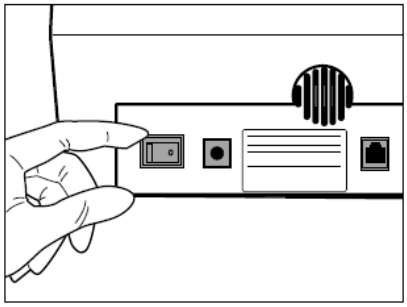
2-1-2 Normal measurement

In normal measurement, more than one parameter can be measured at a time for one sample. The reagent strip table can hold three single reagent strips and one multi reagent strip, so that simultaneous measurement of up to nine parameters is possible. The operating procedure of normal measurement is described as shown below.

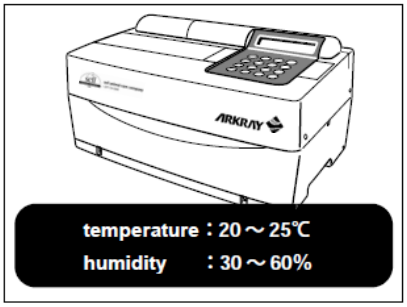

Turn ON the Power.
MAIN MENU is displayed.
Turn OFF the power if necessary.
Press [START] or [1] key.
Press [STOP].
THE STANDBY SCREEN is displayed.
Checks before measurement.
● Thermal printer paper
● White and black plates, and Reagent Table
● Date of clock
● Lot information
● Set ID if necessary
Set the tips.
Use one tip for 1 measurement.
Set the sample.
Pipette the whole blood samples and place it in the centrifuge tube. Pipette the serum and plasma samples and place them in the cuvette. Then set the samples in the Centrifuge-equipped Multi Rack.
⚠ Caution
Prepare the samples in accordance with the instructions attached to the Reagent Strip.
Set the Reagent Strips.
Set the Reagent Strips required for the measurement items.
Press [START].
Start measurement.
Output of the measurement results.
When the measurement is completed, the measurement results are printed out by the built-in printer.
Clean up
Remove any used Reagent Strips and dispose of them.
When the message "Remove used tips" appears on the screen, dispose of used tips in the Tip Waste Case.

2-2 Cautions

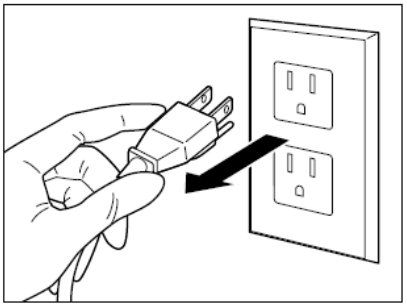
2-2-1 Cautions



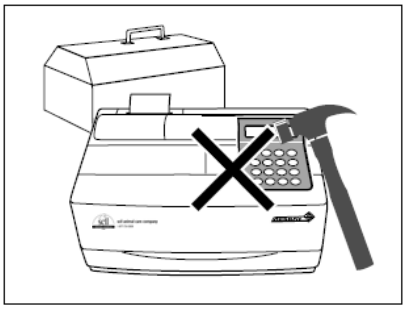
- Before turning ON the power, check list of cautions in manual so the analyzer is always operated under proper conditions.



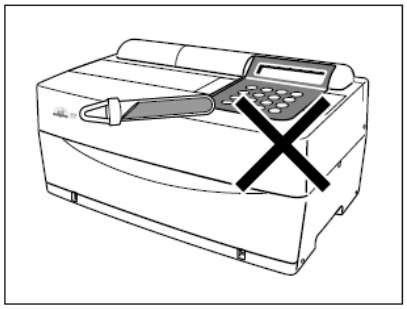
- The analyzer has a temperature control function in order to yield correct measurement results at the room temperature of 10~30ºC/50~86ºF for accurate measurement.



- If there is anything wrong with the analyzer or in case of odor or smoke, turn OFF the power immediately and unplug to prevent further damage.

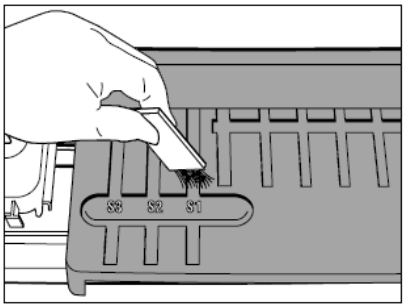


- If the analyzer is out of order, contact scil technical services. Do NOT attempt to repair it on your own. Damage may occur to the analyzer.

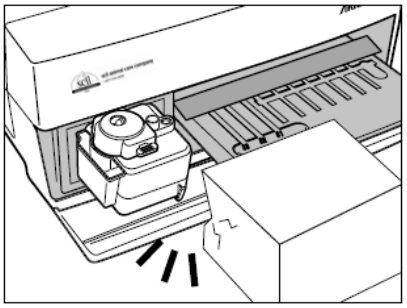


- Do NOT put a container with samples in it on the analyzer. If samples spill on the device, it may get damaged.

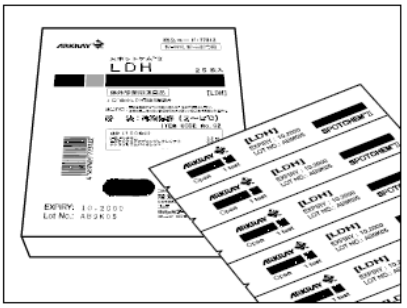
- Do NOT move the analyzer during measurement. It may cause a malfunction, and potentially incorrect measurement results.



- Perform proper maintenance following the manual and quick reference instructions to ensure high accuracy.

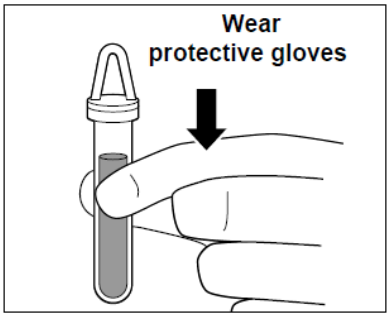


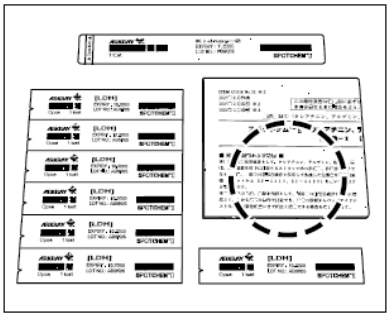
- Do NOT place anything in front of the Table Cover. It automatically opens during operation.



- Use scil SPOTCHEM Reagent Strips only for the analyzer. Other types of Reagent Strips will not work in the analyzer.

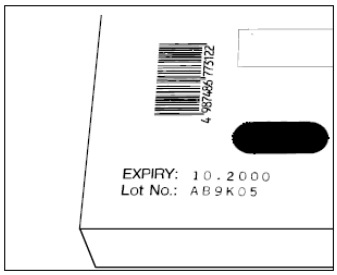
2-2-2 Handling samples

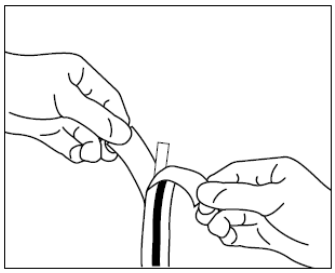




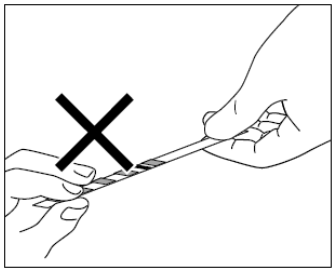
- Blood is used as a measurement sample with this analyzer. Exercise care whenever handling blood. Incorrect or imprecise procedures may result in exposure to potentially pathogenic microbes.
- Handling samples slightly differs depending on test items. Follow the instructions on the package insert of scil SPOTCHEM Reagent Strips.

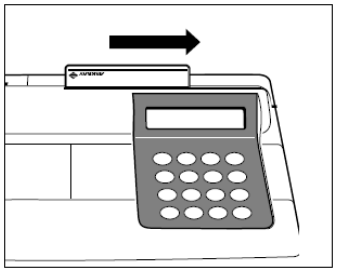
2-2-3 Handling Reagent Strips





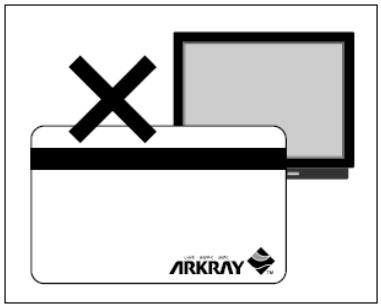
- Do NOT use expired reagent strips. Do not use deteriorated reagent strips that show signs of discoloration or deformation, even if not yet expired. Incorrect results could occur.
- Open a reagent strip package immediately before use. If the opened reagent strip is left for awhile, it will absorb water from the air or gather dust, which may result in incorrect measurement results.



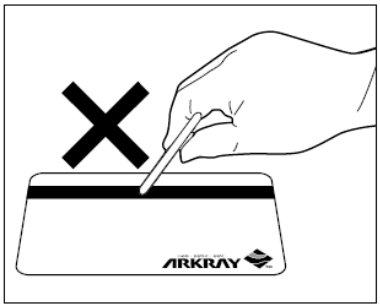


- Do NOT touch the reagent field on the strip with fingers. Material from your skin on the reagent field may result in incorrect measurement results.
- When a new reagent strip box is opened, perform calibration by magnetic card using the supplied Reagent Card (see 2-5-2).

2-2-4 Handling Magnetic Cards



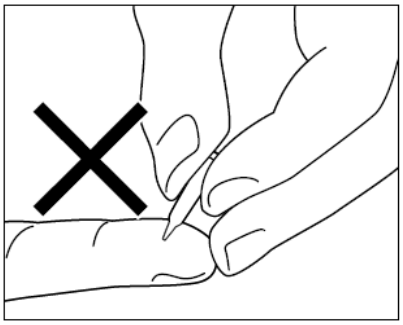
● Do NOT place a magnetic card close to a magnetic object. Information on the magnetic card may become unreadable.



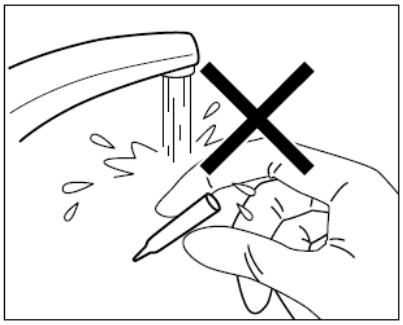
● Do NOT scratch the magnetic surface (stripe). Information on the magnetic card may become unreadable.

● Do NOT use a magnetic card (supplied with Reagent Strips or Calibrator) with other devices. The card may become jammed in the device.

2-2-5 Handling tips

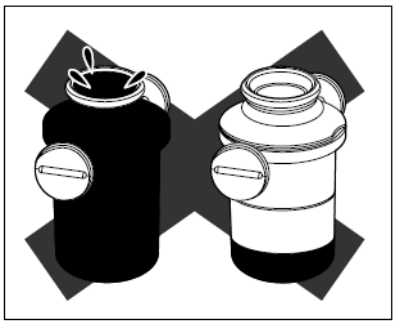


● Do NOT touch the pointed end of a Tip with bare hands. If it becomes soiled, correct sampling may not be possible, resulting in incorrect measurement results.

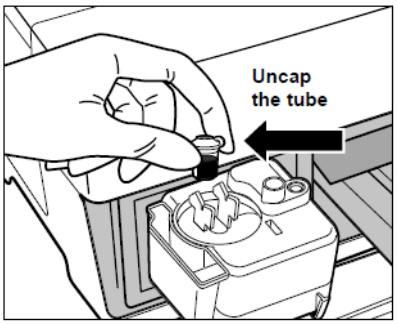


● Do NOT reuse a tip. Water-repellent treatment is applied to each tip so the sample can be pipetted correctly. If it is rinsed, the coating will come off and correct measurement results may not be obtained.

2-2-6 Handling Centrifuges



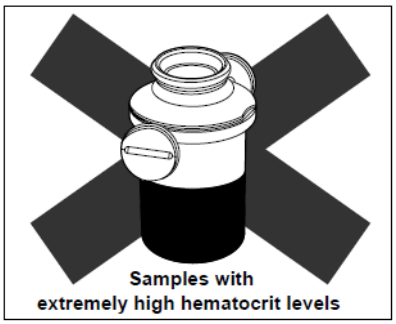
- Pipette 250µL of whole blood into the centrifuge tube. Insufficient sample volume may result in incorrect measurement results. Excessive volume may cause blood to stain the cover.



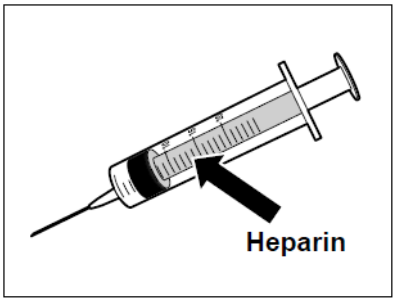
- Heparin is contained as an anticoagulant. Close the cap tightly after adding a sample, and invert it and use the sample after removing the cap.

  Remove air bubbles or skin on the surface of the sample, if any. Otherwise they may cause incorrect measurement results.

  Wipe any blood attached to the outside of centrifuge tube before placing it to the centrifuge; otherwise it may cause spattering of the sample.



- Samples with extremely high hematocrit levels may yield incorrect measurement results due to inadequate serum for proper testing.



- Use green top or heparin containing vacutainers to prevent coagulation of the sample, or heparin in the syringe used for venipuncture..
- Samples that show heavy coagulation or deposition of fibrin, may not be suitable for measurement.

2-3 Preparation for Measurement

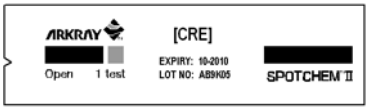
2-3-1 Preparation

Prepare necessary instruments as described in the following table before starting Normal Measurement and Calibration by Magnetic Card.

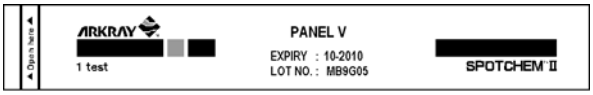
O = Necessary X = Unnecessary.

Items	Normal measurement	Magnetic card calibration
Protective gloves	O	X
Centrifuge Cup	Used for measurement of whole blood samples	X
Whole blood sample tube (Orange cap)	Used for measurement of whole blood samples	X
Serum sample tube (Blue cap)	Used for measurement of serum or plasma samples	X
Tip	O	X
Reagent Strip (Single or Multi)	O	X
Magnetic card (Reagent Card)	X	O

Single Reagent Strip



Multi Reagent Strip



2-3-2 Startup

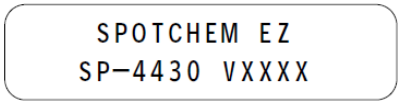
The operating procedures from turning ON the power to the MAIN MENU are described below.

NOTE

Before turning ON the power, make sure that the maintenance cover is in position. If light enters into the analyzer during initialization, an error will occur.
Before turning ON the power, make sure that nothing is placed in front of the Table Cover. The Table Cover opens during initialization. If there is an obstruction, a problem may occur.

1. Turn ON the power.

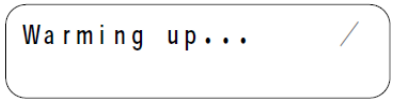
- Turn on the power at the rear of the analyzer. When the power is ON, "!" is displayed.



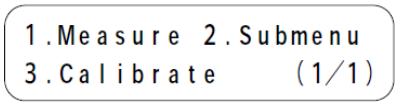
→To obtain the desired contrast on the screen, rotate contrast adjustment knob ("CONT") on the rear of the analyzer.

- The name of the analyzer and the system version ("VXXXX" shown at the right) are displayed and warm-up starts.

- The screen appears during warm-up as shown at the right, and initialization and self-check of each function are performed.



- After 10 minutes has passed, the unit will reach 25℃/80 ˚F and warm-up is completed. The MAIN MENU is displayed.



→Warm-up time depends on the room temperature.

2-3-3 Checks Before Measurement

Check the following aspects of the analyzer before performing running a test or calibration.

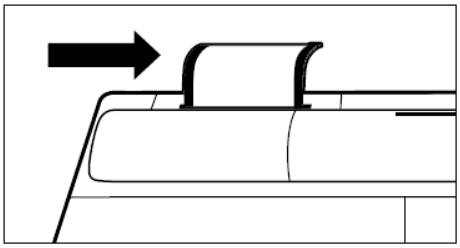
Wear protective gloves where exposure to pathogenic microbes is possible.

⚠CAUTION

Discard used samples, cups and tips according to your local regulations on biological waste.

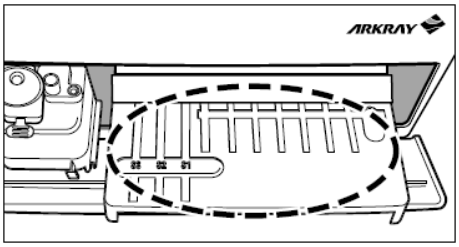
1. Thermal printer paper.

- If a red line appears on both sides of the printer paper, replace it with a new roll (see“4-3-1 Thermal printer paper replacement”).



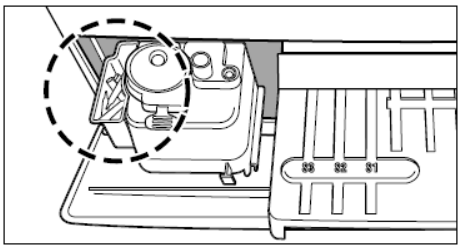
2. Reagent Table.

- Check the Reagent Table and clean it if necessary (see “4-2-1 Cleaning the Reagent Table”).



3. Centrifuge Multi Rack.

- Make sure that the centrifuge-equipped multi Rack has no used samples in it. Discard used tubes and tips.
- Install the tip waste case.



4. Setting the parameters.

- Set parameters as necessary. If the same parameter settings are continuously used, resetting is not necessary. See “Chapter 3 SUB MENU” for details.

IMPORTANT

If desired, it is possible to print the present parameter settings, (see “3-3-1 Printing parameters”).

2-3-4 Preparation of samples

Prepare samples as described below except for Hb and HDL-C, which require different procedures. (see section 2-16 and 2-17). Read the package insert for the scil Spotchem reagent strips carefully for details on handling samples.

⚠WARNING

Wear protective gloves where exposure to pathogenic microbes is possible.

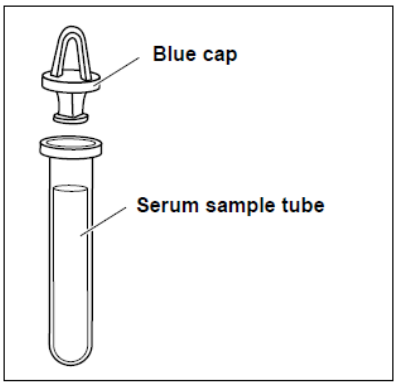
→ The required volume of a serum of test items + 38 µL. For example, the required volume for 5 tests is: 6 x 5 = 38 µL = 68 µL

Sample	Sample tube	Required sample volume
Serum or Plasma	Serum sample tube (Blue cap)	100 µL
Whole blood	Whole blood Centrifuge tube (Orange cap)	250 µL

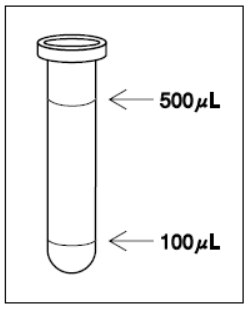
- **Serum or plasma sample.**

Prepare a Serum Sample Tube (blue cap).

Pipette serum or plasma. If measurement is not performed immediately, cap the tube to prevent contamination or evaporation.



→A serum or whole blood sample tube has 2 lines marked on it for 100µL and 500 µL.



IMPORTANT

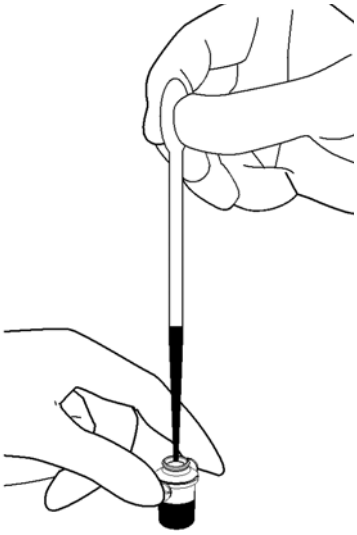
Remove any air bubbles or film on the surface of the sample.
These can cause incorrect measurement results.

→The whole blood sample tube contains heparin as an anticoagulant.

Using a Centrifuge Cup

→A centrifuge tube has 1 line marked on it for 250µL.

- Uncap the tube and pipette 250µL of heparinized whole blood into the centrifuge tube.
- The centrifuge tube includes Heparin as an anticoagulant.
- Close the cap tightly after setting a sample, and invert it.
- Use the sample after removing the cap.
- Wipe off any sample attached to the outside of the centrifuge tube before placing it in the centrifuge to prevent spraying of sample on inside of centrifuge cover.
- Place samples in the centrifuge (see“ 2-4-1 Normal measurement”).



IMPORTANT

Remove any air bubbles or film on the surface of the sample. This can cause incorrect results.

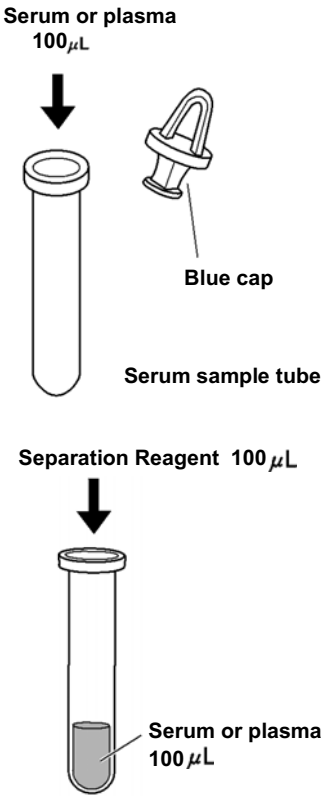
Wipe off any sample attached to the outside of tube before placing it to the centrifuge otherwise it may cause spattering of the sample.

Samples with heavy clotting or fibrin deposits sometimes cannot be measured. Take care to use properly anti-coagulated samples.

→If HDL-C reagent (direct method) is used for measurement, this procedure is unnecessary.

Using HDL-C Kits

- Prepare a Serum Sample Tube (blue cap).
- Pipette 100µL of serum or plasma.
- Gently pipette 100µL of HDL Separation Reagent into the tube.
- Cap the tube tight.
- Invert the sample more than 10 times and let the sample sit at least 5 minutes.
- Centrifuge the samples for 3 minutes. Check if the supernatant is clear of impurities and if there is any kind of film or not. Removing the supernatant is not necessary. Uncap the tube and place it directly in the sample rack.



IMPORTANT

Remove any bubbles or film on the surface of the sample. They can lead to incorrect results.

2-4 Measurement

2-4-1 Normal measurement

This section describes the normal steps to testing parameters. Simultaneous measurement of up to nine parameters is possible for one sample, using single and the multi reagent strips.

WARNING

Wear protective gloves where exposure to pathogenic microbes is possible.

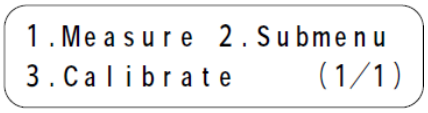
CAUTION

Discard used samples, cups and tips according to your local regulations on biological waste disposal.

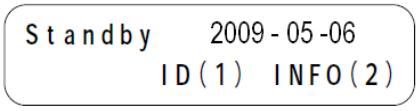
→[START] key can be used instead of the [1] key.

1. Display the Standby screen.

- Press [1] key on the MAIN MENU. The table cover opens and the reagent strip table and centrifuge equipped multi rack slide forward.



- The Standby screen is displayed as shown at the right.



2. Check the time and date.

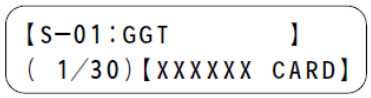
- Make sure that the time and date on the Standby screen is correct. If not, set correct time and date.

IMPORTANT

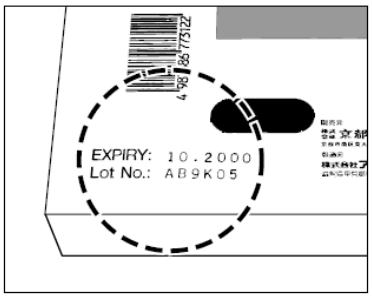
If the wrong date is set, incorrect results may occur. Before measurement, make sure the date is correct.

3. Check the lot number of Reagent Strips.

- Press [2] key on the Standby screen.



- The Confirm screen is displayed showing the information of the reagent strips stored in memory. Check that the test parameters and lot numbers of the reagent strips match with those shown on the screen (lot numbers are “XXXXXX” at right). Lot number of a reagent strip is printed on the rear side of the aluminum foil package or on the box.

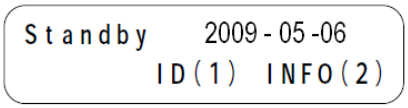


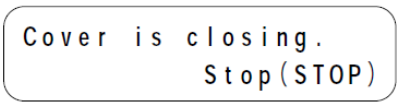
→ To check numerous test items at one time, print out the lot numbers of all items. Press [3] key on the Standby screen to print out all the lot numbers.

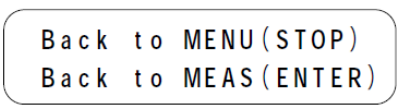
IMPORTANT

If the lot numbers of the reagent strips are different from those shown on the screen, perform Calibration by the magnetic card before measurement.

- Press [hyphen (-)] key to check the information of the reagent strip you are using.
- When confirmation is completed, press [STOP] key. The Standby screen is restored.







→ Besides [hyphen (-)] key, [0], [2], [4], [5], [6], and [8] keys can be used in selecting items.
[0] -> initially displayed item
[2] -> last item
[4] -> previous item
[6] -> next item
[8] -> first item
[5] -> first item of the multi reagent strip

→ If no key entry is made within 3 minutes after the table cover is opened, an alarm beeps and the table cover closes. If [STOP] key is pressed while the message “CANCEL” is displayed, the table cover remains open and Standby screen is restored.

→ After the Table Cover is closed, a message shown at the right is displayed. To restore the MAIN MENU, press [STOP] key. When [ENTER] key is pressed, the table cover opens and the Standby screen is restored.

→ The number of the previous measurement No + 1 is displayed as the initial number.
To perform measurement with the number, press [ENTER] key to confirm. Once the power is turned off, the initial number returns to 1.

→ The last entered ID is displayed. To perform measurement with the same ID as shown on the screen, press [ENTER] key. If the MAIN MENU is restored, the previous ID is cleared.

→ To enter ID, use the numeric keys and [-/.] key.
Example: To enter "EZ"
[3] [3] [3] [9] [9] [9] [9] [9]
Example: To enter "SP"
[7] [7] [7] [7] [7] [-] [7] [7]
The following 12 signs can be entered by using [0] key.
＊ ？ ＃ ． ， ： ； ’ － ＋ ／ ％

→ To delete the last character, press [MENU] key and [-/.] key simultaneously.To restore the initially shown ID, press [START] key.

→ When the barcode reader (optional) is used, manual entering is not necessary.Read barcode is automatically allocated as ID.

→ When the barcode reader is used a message "BARCODE AVAILABLE" is displayed.

→ Press [hyphen (-)] key on the Standby screen to switch the operation guidance at the lower part of the screen.

→ If no key entry is made within 3 minutes after the Table Cover is opened, an alarm beeps and the Table Cover is closed.
If [STOP] key is pressed while the message "CANCEL" is displayed, the Table Cover remains open and the Standby screen is restored.

→ After the Table Cover is closed, a message shown at the right is displayed.To restore the MAIN MENU, press [STOP] key.
When [ENTER] key is pressed, the Table Cover opens and the Standby screen is restored.

4. Set measurement Number or ID.

ID of up to 13 characters can be set for each measurement. If ID setting is not desired, move on to procedure 6. The reagent table will slide forward.
The Standby screen is displayed as shown at the right.

- Press [1] key on the Standby screen.
  The measurement No. screen is displayed.

```
Standby     2009-05-06
        ID(1)  INFO(2)
```

- Enter measurement No. Up to 4 Characters can be entered using numbers.

```
No.              <_    >
```

- Press [ENTER] key.

```
ID<_                   >
```

- The entered measurement No. is stored in memory and the ID entering screen is displayed.

- Enter ID. Up to 13 characters can be entered using numbers, letters, and symbols.

- Press [ENTER] key.

- The entered ID is stored in memory and the Standby screen is restored.

```
Cover is closing.
          Stop(STOP)
```

```
Back to MENU(STOP)
Back to MEAS(ENTER)
```

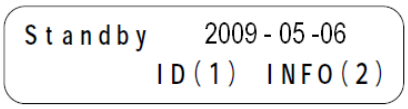
5. Species Selection

→ Besides [hyphen (-)] key, [4] and [6] keys can be used in moving thru the species menu.
[4] -> previous species
[6] -> next species

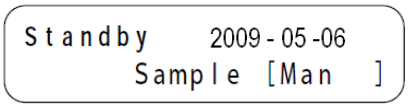
→Pressing [Start] key on the species selection screen starts measurement with the displayed sample type without returning to the Standby screen.

Species selection can be set for measurements. Dog, Cat, Equine and the "Other" species selections (for species not listed) are possible.

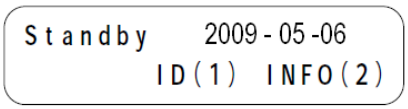
- Press [6] key on the Standby screen. The species selecting screen is displayed.



- Press [hyphen (-)] key to select the species to measure.



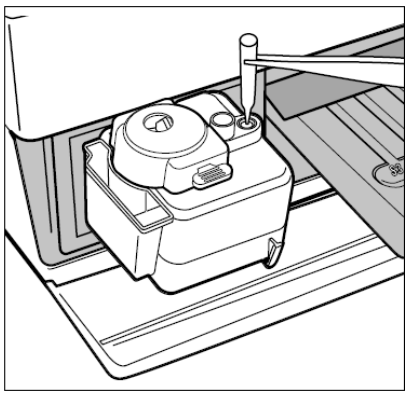
- Press [Enter] key while the selected species is displayed.
- The selected species is set as the sample type and the Standby screen is restored.



6. Set the Tip.

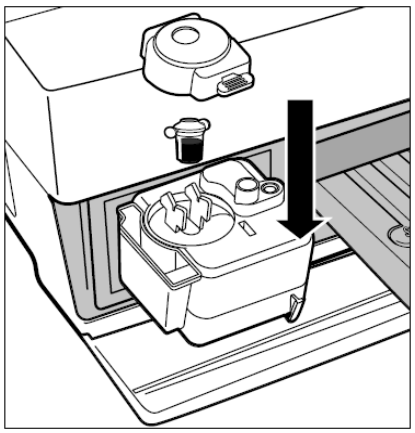
- Place the tip in the tip hole of the centrifuge equipped multi rack using a pair of forceps.

Do NOT touch the pointed end of the tip with fingers. The silicon coating can be disturbed and correct results may not be obtained.



7. Set the samples.

- **Measurement of uncentrifuged whole blood.**
- Open the centrifuge cover and place the uncapped centrifuge cup in position.
- Close the centrifuge cover securely.

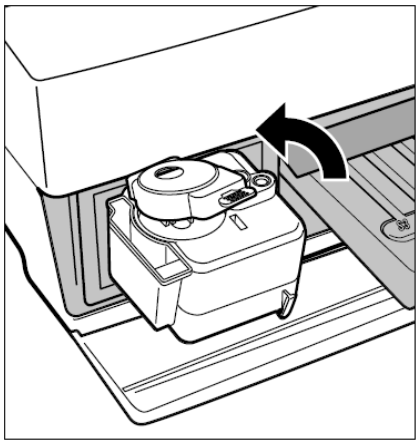


NOTE

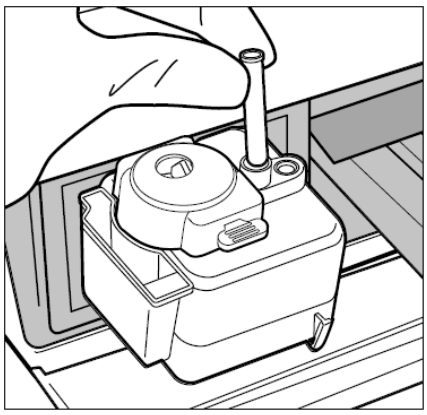
Make sure sample tubes are uncapped otherwise they can cause breakage of a centrifuge tube and the nozzle.

NOTE

Make sure the centrifuge cover is closed properly. If the centrifuge cover remains open, it may become jammed and correct results cannot be obtained.



- **Measurement of serum, plasma or centrifuged samples.**
- Uncap sample tubes and place them to the port of the multi-rack.



NOTE

Make sure the sample tubes are uncapped; otherwise it may cause breakage of the Nozzle.

NOTE

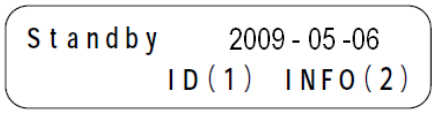
Make sure the centrifuge cover is closed properly.
If the cover is not secure, it can get jammed.

- **Re- measurement (or additional measurement) with a centrifuge.**
  When measuring the previously measured sample with a centrifuge, such measurement can be done at a reduced centrifugal time.

IMPORTANT

When performing additional testing on a previously tested centrifuge sample, quantity may be short. Shortage of sample amount may lead to incorrect results due to aspiration of blood cells or abnormal rotation of centrifuge. Make sure that the remaining sample amount is adequate prior to performing additional measurements.

- Press [0] key on the Standby screen. The centrifuge selecting screen is displayed. [ON] is always displayed at the beginning.



- To switch [On] and [Off] of centrifuge, press [0] key on the centrifuge selecting screen.

→Every time when [0] key is pressed on the centrifugation selecting screen, [On] and [Off] are displayed alternately.

IMPORTANT

To perform the measurement on the screen of [No centrifugation], be sure to use the centrifuged sample. If uncentrifuged sample is used, correct measurement results may not be obtained.

Reagent Strips

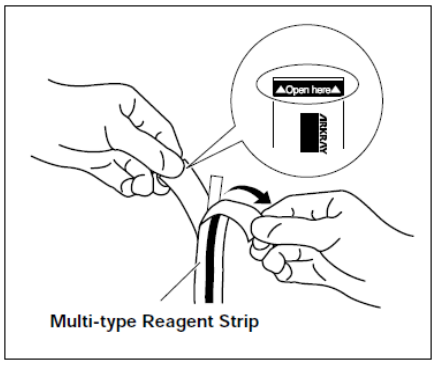
Three reagent strip arrangements are available for testing patient samples:

- Multi reagent strip selection and single reagent strip selection
- Multi reagent strip selection only
- Single reagent strip selection only.

Choose the reagent strip arrangement that meets your desired parameter needs

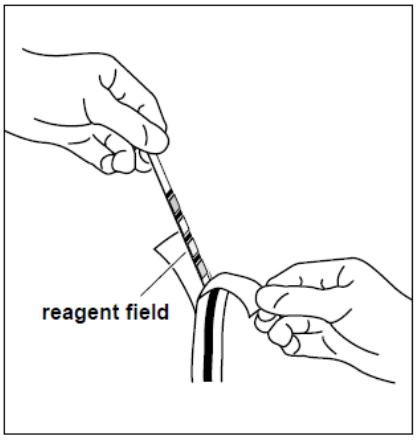
- **Set the Multi Reagent Strip:**

  - Open the aluminum foil package at the point indicated with "▲ Open here" until two thirds of the reagent strip is exposed.

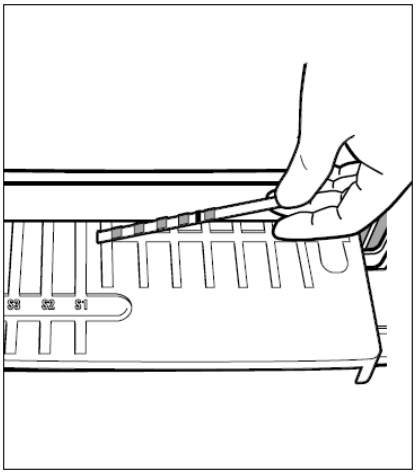


Multi-type Reagent Strip

- Remove a reagent strip from the aluminum foil package without touching the reagent field with your fingers.



- Place the Reagent Strips on the Reagent Table by holding the right side of the strip.

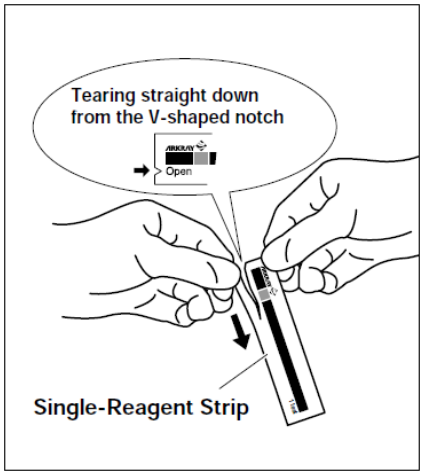


IMPORTANT

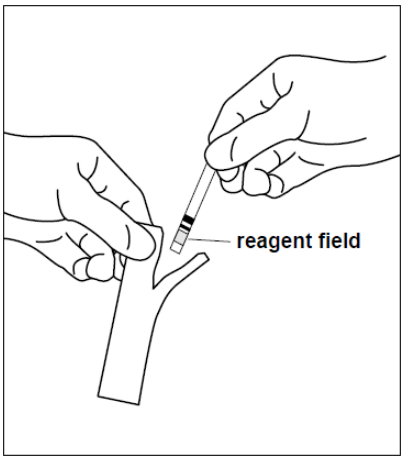
Be sure to insert the end of the reagent strip into the grooves of the reagent table so the reagent strip stays firmly in place. If the reagent strip is bent or placed out of the groove, it may become jammed or incorrect results may occur.

Set the Single Reagent Strips

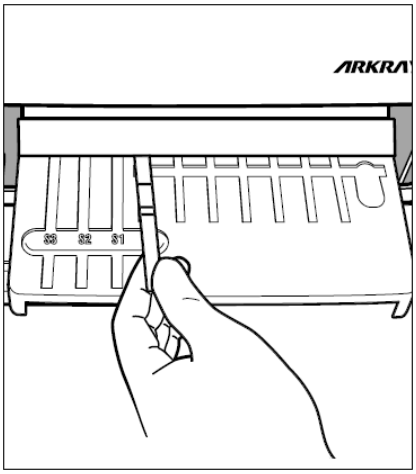
- Open the aluminum foil package of a reagent strip by tearing straight down from the V-shaped notch.



- Remove the reagent strip from the package without touching the reagent field with fingers.



- Insert reagent strips on the reagent table as shown at right.

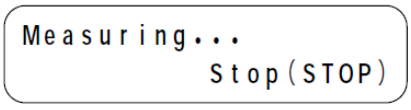


IMPORTANT

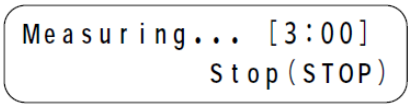
Be sure to insert the reagent strip into the groove so that the strip is firmly in place. If the strip is bent or placed out of the groove, it may become jammed and correct results cannot be obtained.

9. Start the Measurement.

- Press the [START] key. The reagent table and centrifuge multi rack slide backward and the table cover closes. The message ”Measuring…” is displayed.

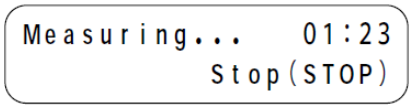


- Approximate time remaining Will be displayed. The time Displayed in [ ] changes every 30 seconds.



→To discontinue the measurement, press [STOP] key to return to the Standby screen.

- As the measurement proceeds, the display of approximate remaining time changes to the ordinary time indication. The [ ] disappears and the time is counted down by one second.



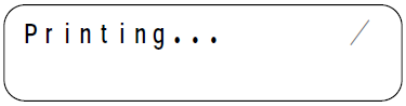
NOTE

Do NOT open the maintenance cover or the table cover during measurement. It will cause an error.

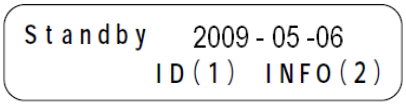
10. End measurement.

→To print another sheet, press [4] key on the Standby screen.

- When measurement is finished, measurement results are printed out. The table cover opens and the reagent strip table and the centrifuge multi rack slide forward.

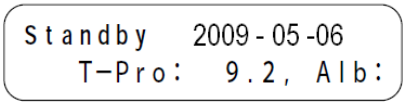


- The Standby screen is restored.



→The measurement result is repeatedly scrolled.

- When results fail to print due to lack of printer paper, press [5] key on the Standby screen to display the latest measurement results.



- Press [5] key again to return the Standby screen.

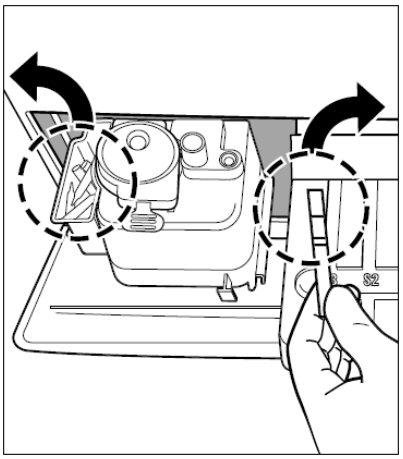
NOTE

Only the parameter name and its result are displayed. Channel numbers, unit symbols and others such as ▲▼ are not displayed. When the details are to be confirmed, thermal printer paper is set for allowing the results to be available in print. To check the detailed results, set printer paper and print out the measurement result.

- Remove any used reagent strips and discard them.
  When the message “DISCARD TIPS” is displayed, remove the tip waste case and discard used tips.

- Reattach the tip waste case.

- To discontinue measurement, press [STOP] key to return to the MAIN MENU.



Remove used tips .
OK (ENTER)

NOTE

The message “DISCARD TIPS” appears once every five measurements. When the message is displayed, discard the tips. Otherwise, problems may occur such as jams with displaced tips.

11. End measurement for the day.

- After finishing all testing for the day, perform daily maintenance as directed on the analyzer and in the manual (see “4-2 Daily Maintenance”).

2-5 Calibration

2-5-1 Overview of calibration

Calibration is necessary to maintain measurement accuracy. It reduces the chance of erroneous results due to aged reagents, differences with product lots, and helps maintain accuracy to a certain level.

This analyzer is designed to be able to perform calibration for different reagent strips by inserting magnetic cards (Reagent Card) storing the lot information of each reagent strip.

Calibration is performed by inserting a magnetic card (reagent card) attached to each reagent strip into the magnetic-card reader.

2-5-2 Calibration by magnetic card

By inserting the Reagent Card included with the single reagent strips or one included with the multi reagent strips into a magnetic-card reader, differences among lots and effects of time on the reagent pack are automatically calibrated.

IMPORTANT

For the lot number of the Reagent Card for magnetic calibration, use the same lot number as that of the reagent strip currently in use (Magnetic cards included with the reagent strips in use). Calibration can not be performed with magnetic cards from different lot number or magnetic cards from different reagent strips.

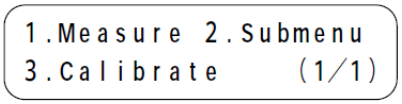
Requirements **Reagent Card**

1. Set the calibration type as by magnetic card.

- Make sure the calibration type is set to calibration by magnetic card (CARD). Changing settings can be found in section 3-3-2 “Enter parameters”.

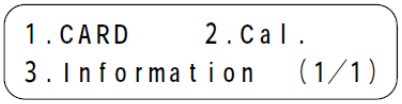
2. Set the calibration condition.

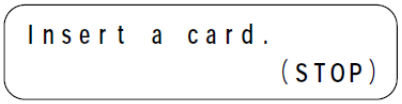
- Press [3] key on the MAIN MENU. The CALIBRATION MENU is displayed.



3. Insert Reagent Card.

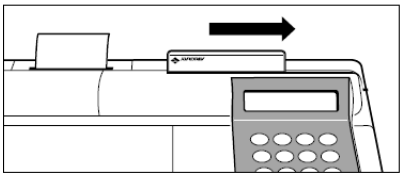
- Press [1] key on the CALIBRATION MENU





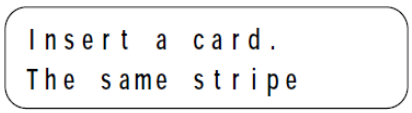
→ Press [STOP] key to stop The calibration by magnetic card.

- Insert a strip of Reagent Card in the magnetic reader and slide the strip to the right.



→ There is no order for inserting the stripes. Either stripe can be inserted first.

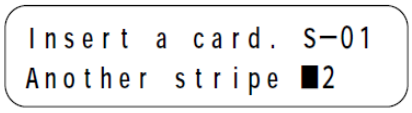
- When the stripe is inserted, the screen shown at the right is displayed.



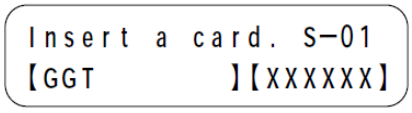
- Insert the same stripe according the message on the screen.

  When the same stripe is inserted twice, item number is displayed. The inserted stripe number is displayed with ■ on the lower right screen.

→ Insert the same stripes twice to read the stored information in the magnetic cards.



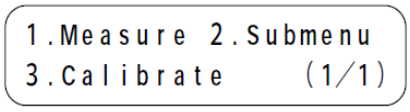
- Insert the remaining stripes twice according to the message on the screen. When all stripes are inserted, measurement item and lot numbers are displayed.



- About 2 seconds after, the magnetic card entry screen will be displayed. Calibration by magnetic card is completed.

4. End of calibration by magnetic card.

- When discontinuing the calibration, press [STOP] key 3 times to return to the MAIN MENU.



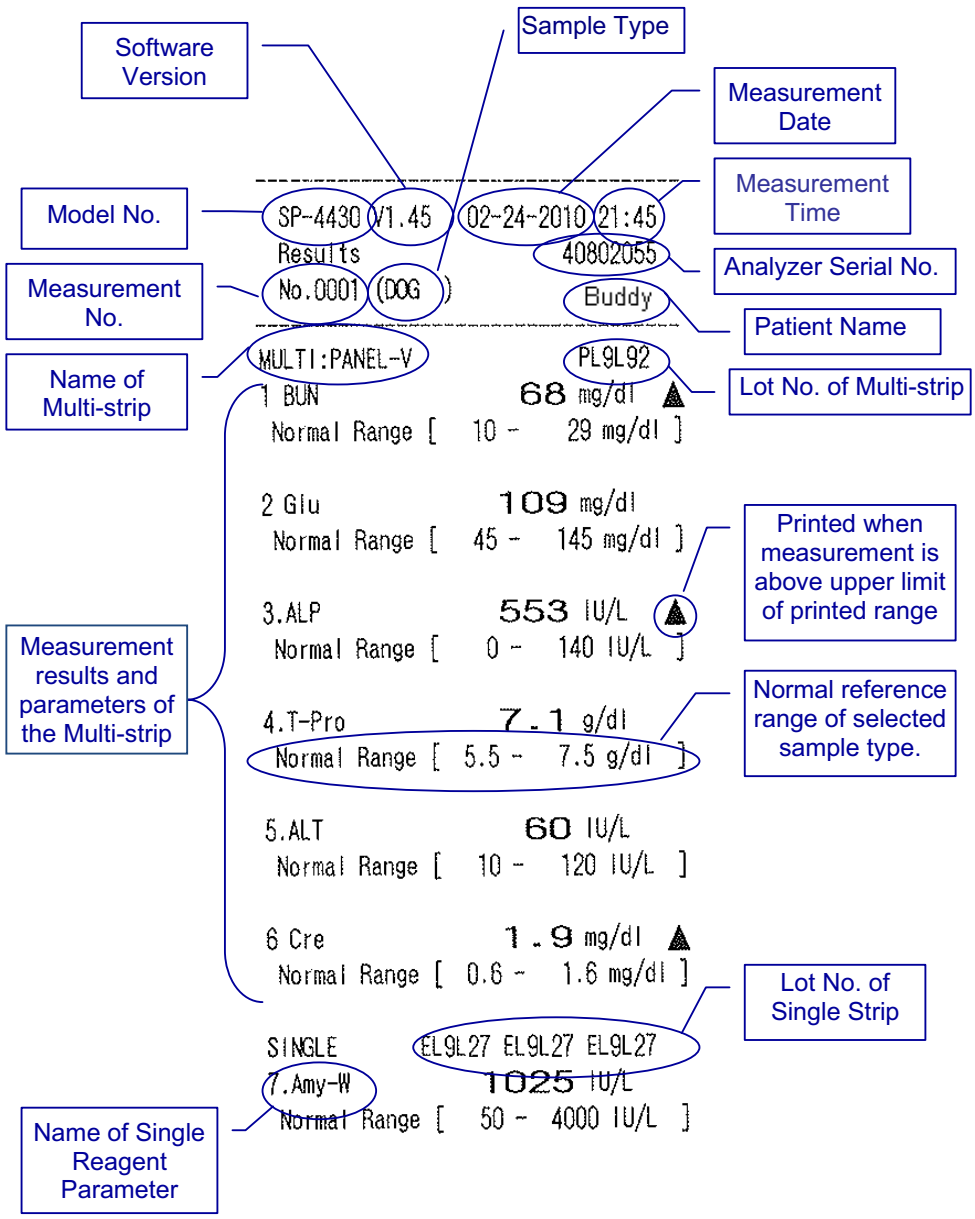
2-6 Interpreting Measurement Results

2-6-1 Printing normal measurement results

To print out the measurement results, Normal printing and Survey Mode printing are available. The Survey Mode has the following additional items to the normal print out. These items are printed out when the Survey Mode is ON:

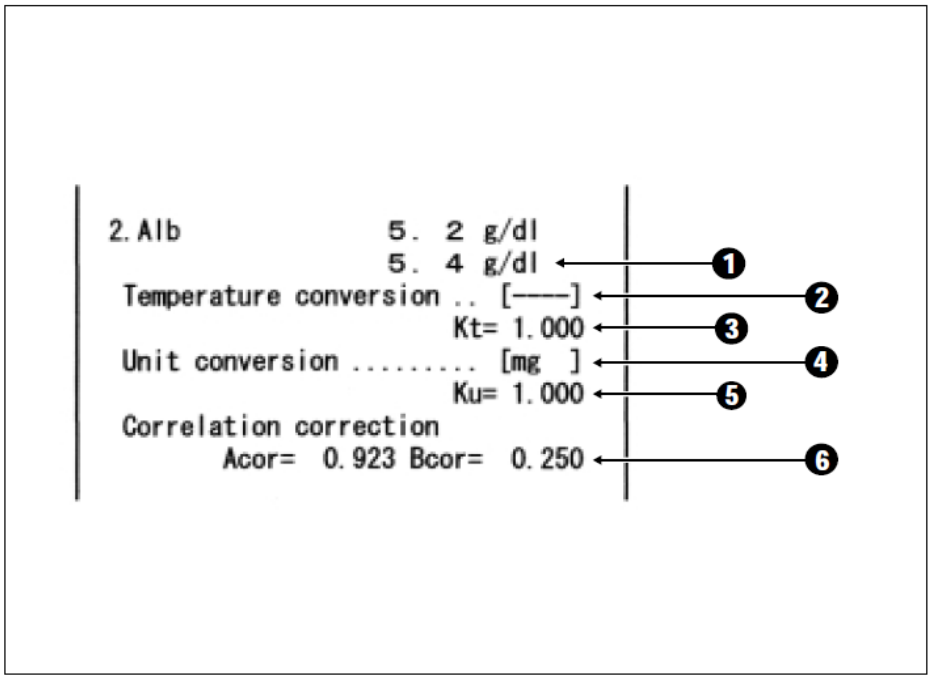
- Measurement value which temperature conversion, unit conversion or correlation correction is not applied.
- Information on temperature conversion (temperature and temperature conversion factor).
- Information on unit conversion (unit and unit conversion factor).
- Information on correlation correction (coefficient of correlation correction).

(1) Normal printing



→ When “Printing of measurement results” is performed on the Sub Menu, results are printed according to the parameter settings of the parameter. That is, if the parameters are changed after the test is run, (temperature or coefficient of correlation correction), the data after the measurement is printed out.

(2) Survey Mode printing (for 1 item)



1. Measurement value which temperature conversion, unit conversion or correlation correction is not applied.

2. Temperature. Printed out as ….. for the items other than enzyme items.

3. Temperature conversion factor. Conversion factor when the standard temperature is 37˚C/86˚F.

→ Generally, mg (conventional unit) is used for unit. To change the unit, contact scil technical services.

4. Unit “mg” is the conventional unit, “SI” is SI unit and “User” is units set by users.

5. Unit conversion factor. Conversion factor when the conventional unit is standard.

6. Coefficient of correlation correction. Coefficient set in the “Entering parameters” on the Sub Menu.

Chapter 3
SUB MENU

With the SUB MENU, auxiliary operations other than normal measurement and calibration can be performed. This chapter describes the SUB MENU functions and operating procedures.

3-1 Overview of SUB MENU

3-1-1 Composition of SUB MENU

3-2 Measurement Results Menu

3-2-1 Print measurement results
3-2-2 Transmit measurement results
3-2-3 Delete measurement results

3-3 Parameter Menu

3-3-1 Print parameters
3-3-2 Enter parameters
3-3-3 Initialize parameters
3-3-4 Enter sample type
3-3-5 Copy standard range setting

3-4 Maintenance

3-5 Mode Menu

3-6 Built-in Clock Adjustment

3-1 Overview of SUB MENU

3-1-1 Composition of SUB MENU

- **MAIN MENU**

  After the power is ON and warm-up is completed, the MAIN MENU is displayed.

  In the MAIN MENU, normal measurement, calibration, and the SUB MENU are available.

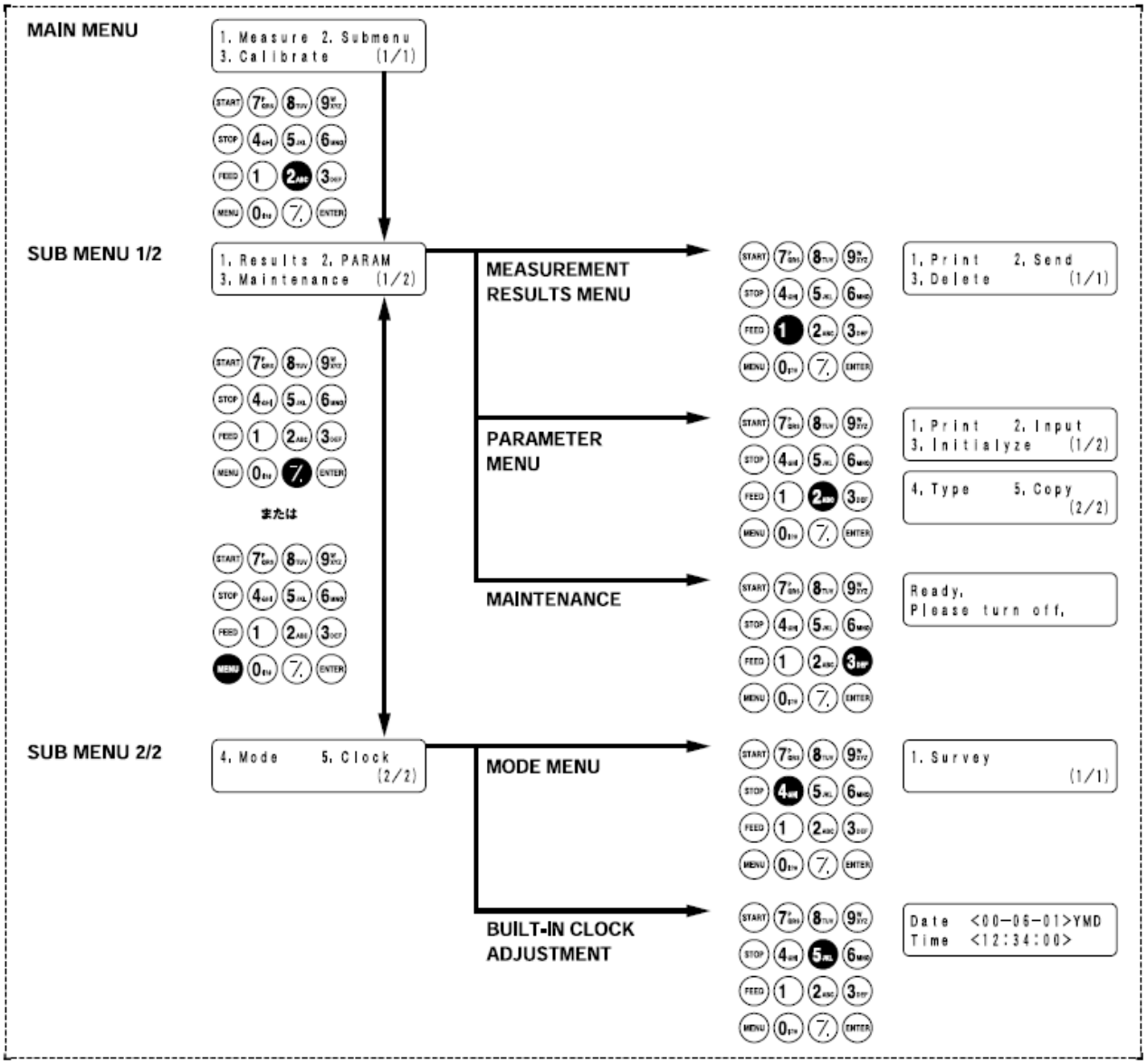
→ When [START] key is pressed on any screen of SUB MENU, the MAIN MENU is restored.

- **SUB MENU**

  The SUB MENU consists of 2 pages. Press [MENU] key or [hyphen (-)] key to switch the SUB MENU pages alternately between SUB MENU 1/2 and SUB MENU 2/2.

  In the SUB MENU, there are several functions to be set and they are arranged in layers.

  This chapter partly describes the SUB MENU.



MEASUREMENT RESULTS MENU

Item	Description	Reference location
1. Print Print measurement results	Prints measurement results stored in the memory. Search by date and ID is available.	**3-2-1**
2. Send Transmit measurement results	Transmits measurement results stored in the memory to the external device. Search by date and ID is available.	**3-2-2**
3. Delete Delete measurement results	Deletes all the measurement results stored in the memory.	**3-2-3**

PARAMETER MENU

Item	Description		Reference location
1. Print Print parameters	Prints the details of current setting of each item.		**3-3-1**
2. Input Input parameters	Temperature	Converts the measurement results to either 25ºC, 30ºC, or 37ºC.	**3-3-2**
	Coefficient of Correlation correction	Inputs the coefficients of correlation correction, a and b in the regression formula: Y=aX+b.	
	Calibration condition	Sets the calibration type (Cal. Or CARD) and the number of times for calibration.	
	Standard range	Inputs the upper and lower limit values of the standard range by the sample types 1 to 5	
3. Initialize Initialize parameters	Initializes the setting details for each item.		**3-3-3**
4. Type Input sample type name	Enters sample type names. Sets the sample type to be used as the basic setting.		**3-3-4**
5. Copy Copy standard range setting	Copies the standard range setting for all items of a sample type to one for another sample type.		**3-3-5**

MAINTENANCE

Item	Description	Reference location
	Performs daily maintenance	**3-4**

MODE MENU

Item	Description	Reference location
Survey	Turns ON/OFF the Survey Mode	**3-5**

BUILT-IN CLOCK ADJUSTMENT

Item	Description	Reference location
	Sets the date and time.	**3-6**

3-2 Measurement Results Menu

3-2-1 Print measurement results

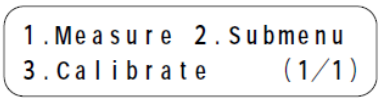
→ If [STOP] key is pressed during operation, the previous screen is restored.

In case of reprinting, measurement results are printed starting from the latest result.

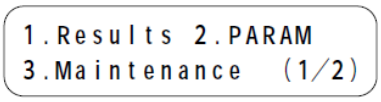
Print measurement results stored in the memory (Max. 100 measurements). The following three options for printing are available.

1. **LATEST: The latest measurement result (one measurement).**
2. **ALL: All measurement results (Max. 100 measurements) stored in the memory.**
3. **SEARCH: The measurement results searched by the date range and/or ID.**

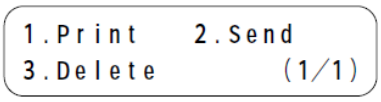
1. Display setting screen.



- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.

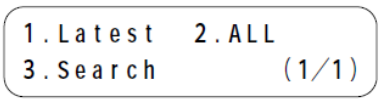


- Press [1] key.
  The MEASUREMENT RESULTS MENU is displayed.



3. Select measurement results to print.

- Press [1] key.
  The Measurement result selecting screen is displayed.



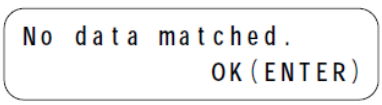
Select the measurement results to print by using the numeric keys.

1. LATEST: The latest measurement result (1 measurement)
2. ALL : All measurement results
3. SEARCH: The searched measurement results by date and ID

- **When LATEST or ALL is selected,**
  Printing starts immediately.
  After printing is completed, the measurement result selecting screen is restored.

→ If the selected measurement is not found in the data, “No matching data” is displayed as shown on the right. Press [ENTER] key to return to the measurement results selecting screen.

- **When SEARCH is selected.**
  The display proceeds to “step 3”.



3. Enter search condition.

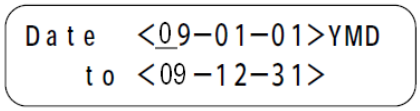
- Enter the dates of starting and finishing measurements by sliding the cursor using [hyphen (-)] key.

→ If designation of the range of measurement dates (the dates of starting and finishing measurements) is unnecessary, press [ENTER] key twice to proceed to the next setting screen.

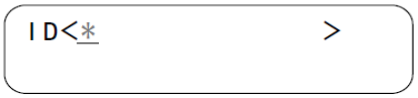
→ Be sure to enter correct dates to avoid inconsistencies.

→ The 2-digit number of the “year” section of the date indicates the last 2 digits of year and is interpreted as follows:

00~89 → 2000 – 2089



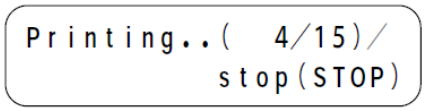
- Press [ENTER] key. The ID entering screen is displayed. Press [ENTER] key when not searched by ID.



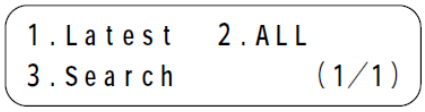
- Enter an ID search pattern for the sample(s) to print by using numbers, alphabets, and symbols up to 13 characters.
  Wildcards can be used to enter.

→ See section 3-09 for information on wildcards.

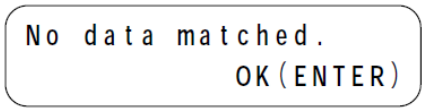
- Press [ENTER] key.
  The selected measurement results are printed out.



- When the printing is completed, the Measurement result selecting screen is restored.

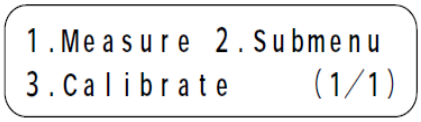


→ If selected measurement result is not found in the data, “No matching data” is displayed as shown on the right. Press [ENTER] key to return to the Measurement result selecting screen.



4. End printing.

- Press [STOP] key three times to return to the MAIN MENU.



3-2-2 Transmit measurement results

→If [STOP] key is pressed during operation, the previous screen is restored.

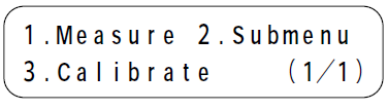
→In case of retransmission, measurement results are printed out starting from the latest result.

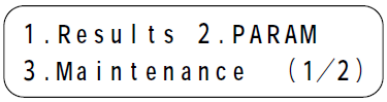
Transmit measurement results (Max. 100 measurements) stored in the memory. The following three types for transmission are available.

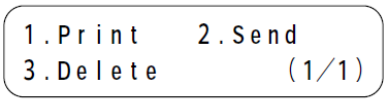
1. **LATEST: The latest measurement result (one measurement).**
2. **ALL: All measurement results (Max. 100 measurements) stored in memory.**
3. **SEARCH: The measurement results searched by the date range and/or ID.**

1. Display setting screen.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.

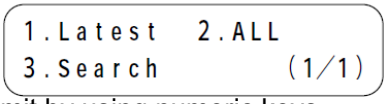






2. Select measurement results to transmit

- Press [2] key.
  The Select Results screen is displayed.



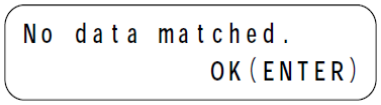
Select the measurement results to transmit by using numeric keys.

1. LATEST : the latest measurement result (1 measurement)
2. ALL : all measurement results
3. SEARCH : the searched measurement results by date and ID

- **When LATEST or ALL is selected.**
  Retransmission starts immediately. After retransmission is completed, the Measurement result selecting screen is restored.

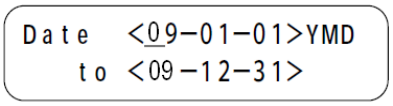
→If the measurement result selected is not found in the data, “No matching data” is displayed as shown on right. Press [ENTER] key to return to the Measurement result selecting screen.

- **When SEARCH is selected.**
  The display proceeds to “step 3”.



3. Enter searching condition.

- Enter the dates of starting and finishing measurements by sliding the cursor using [hyphen (-)] key.



→If designation of the range of measurement dates (the dates of starting and finishing measurements) is unnecessary, press [ENTER] key twice to proceed to the next setting screen.

- Press [ENTER] key. The ID entering screen is displayed. Press [ENTER] key when not searching by ID.

→Be sure to enter correct dates to avoid inconsistencies.

→The 2-digit number of the "year" section of the date indicates the last 2 digits of year and is interpreted as follows:

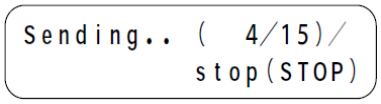
00~89 -> 2000~2089
90~99 -> 1990~1999

- Enter an ID searching pattern for the sample(s) to print by using numbers, alphabets, and symbols up to 13 characters.

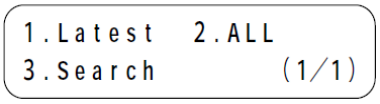
Wildcards can be used to enter.

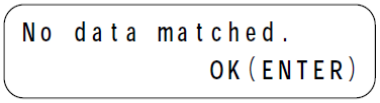
→See 3-09 page for information on wildcards.

- Press [ENTER] key.
The selected measurement results are transmitted.



- When the transmission is completed, the Measurement result selecting screen is restored.

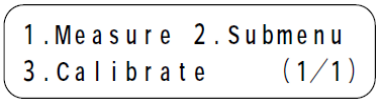




→If the selected measurement result is not found in the data, "No matching data" is displayed as shown on the right. Press [ENTER] key to return to the Measurement result selecting screen.

4. End transmission.

- Press [STOP] key three times to return to the MAIN MENU.

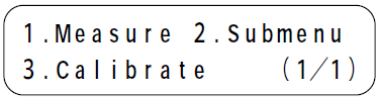


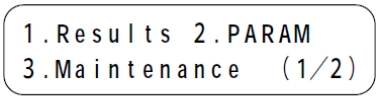
3-2-3 Delete measurement results

Delete all the measurement results stored in memory.

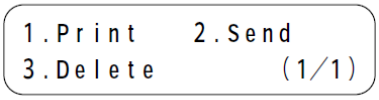
1. Display setting screen.

- Press [2] key on the MAIN MENU. SUB MENU1/2 is displayed.



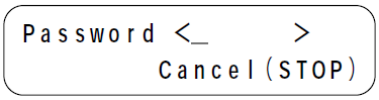


- Press [1] key. The MEASUREMENT RESULTS MENU is displayed.

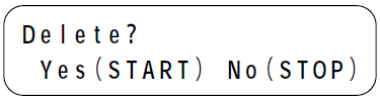


2. Delete measurement results.

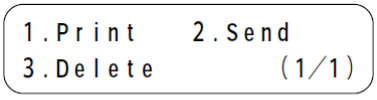
- Press [3] key. The Password entering screen is displayed. Enter password “99”.



- The Delete confirmation screen is displayed.

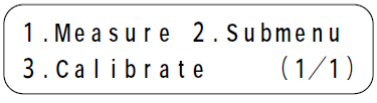


- Press [START] or [STOP]. If [START] key is pressed, the measurement results are deleted and the MEASUREMENT RESULTS MENU is restored. If [STOP] key is pressed, deletion is canceled and the MEASUREMENT RESULTS MENU is restored.



3. End Deletion.

- Press [STOP] key three times to return to the MAIN MENU.



Wildcards

Wildcards can be used for ID search. Wildcards have two types of characters, “?” and “ ”, indicating a single or any number of characters.

- “?” indicates a single character.
- “ ” indicates any number (including zero) of characters.

For instance, if “????” key is entered, 4-character IDs are retrieved. If “A” is entered, IDs starting with “A” are retrieved. The following table shows details.

	Searching Pattern	Meaning
Example 1	? ? ? ? M	5-character ID ending with “M”
Example 2	A B ? Y Z	5-character ID starting with “AB” and ending with “YZ”
Example 3	**A B Y Z**	ID starting with “AB” and ending with “YZ”
Example 4	P Q R	ID including “PQR”
Example 5	N ? ? ?	ID of 4 characters or more starting with “N”

This function is upper/lower case sensitive.
The characters “?” key or “ ” themselves cannot be searched. (e.g. to search IDs starting with [hyphen (-)] key by entering “? ”, the attempt will fail.)
A searching pattern with more than four asterisks (*) cannot be entered.

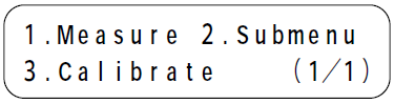
3-3 Parameter Menu

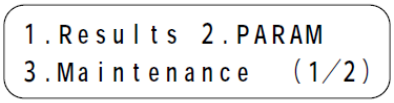
3-3-1 Print parameters

It is possible to print the current parameter settings by each measurement item if needed:

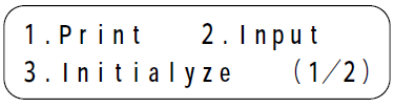
1. Display setting screen.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.





- Press [2] key.
  The PARAMETER MENU 1/2 is displayed.



3. Print parameter settings.

- Press [1] key.
  The Measurement item selecting screen is displayed.

- Select measurement items to print by pressing [hyphen (-)] key.

- Press [ENTER] key.
  Printing starts. After printing is completed, the Measurement item selecting screen is restored.

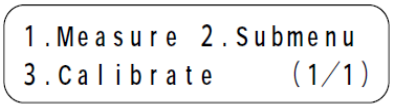
→Besides [hyphen (-)] key, [0], [2], [4], [5], [6], and [8] keys can be used in selecting items.
[0] -> initially displayed item [2] -> last item
[4] -> previous item
[6] -> next item
[8] -> first item
[5] -> first item of the Multi Reagent Strip

→If “ALL SINGLE” or “ALL MULTI” is selected, parameter settings of all the items for single or multi reagent strips are printed out respectively.

→To stop printing, press [STOP] key. Printing stops and the Measurement item selecting screen is restored.

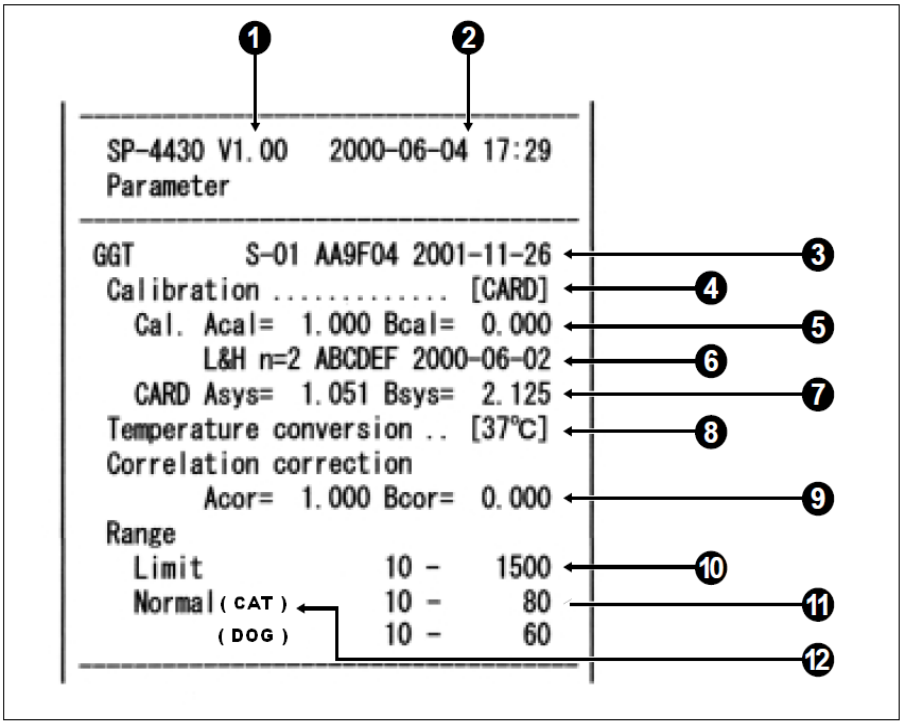
4. End printing.

- Press [STOP] key to return to the MAIN MENU



Parameters can be printed by executing "Printing parameters".
The formats are slightly different between single reagent strips and multi reagent strips.

(1) Printing of Single Parameters



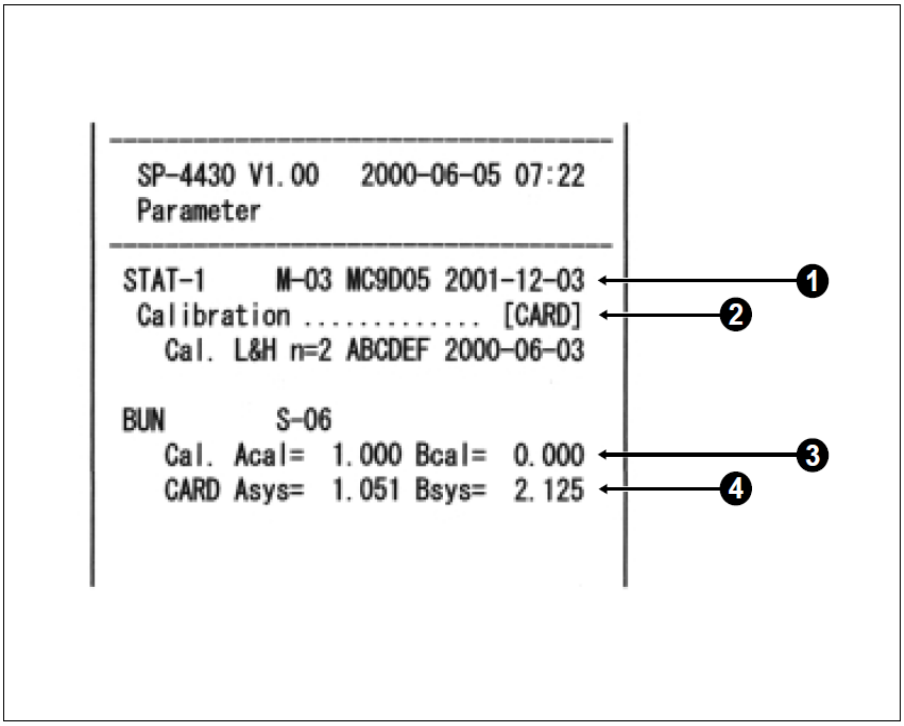
1. Version.
2. The date and time are printed when "printing of parameters" is executed.
3. From the left, item name, item symbol, lot number and expiry date.
4. Calibration type. CARD means calibration by magnetic card.
5. Calibration factor
6. From the left, calibration mode (L&H, L, H), the number of calibration times, lot number and calibration date.
7. Coefficient of system's difference correction
8. Temperature. Printed out as ….for the items other than enzyme items.
9. Coefficient of correlation correction. Coefficient set in the "Entering Parameters" in the SUB MENU.
10. Measurement range. The lower limit and upper limit.
11. Standard range for species. The lower limit and upper limit.
12. Species. The lower and upper limit of standard range for each species set. Printing is available only when sample type is set.

→ The lot number and calibration date are printed when calibration by kit was performed.

→ "▲" is not printed when the upper limit of the standard range is the same or higher than the upper limit of the measurement range.

→ "▼" is not printed when the lower limit of the standard range is the same or lower than the lower limit of the measurement range.

(2) Printing of Multi Parameters



1. Left to right: name of multi reagent strip, item symbol, lot number and expiration date.

2 Calibration type: CARD means calibration by magnetic card.

3 Calibration factor.

4 Coefficient of system's difference correction

→The lot number and calibration date are printed when calibration is done by calibrator kit.

3-3-2 Enter parameters

→If [STOP] key is pressed during entry, the entry is canceled and the cursor returns to the previous "[ ]" or "< >".

→If no change is needed to the previous setting, press [ENTER] key to go to next "[ ]" or "< >".

Set parameters (measurement conditions) for temperature, coefficient of correlation correction, normal value range, and calibration conditions. Regarding Multi-type Reagent Strips, setting of "calibration conditions" only is possible. The other parameters conform to those preset for Single Reagent Strips.

- **Temperature**
  This device consistently performs measurements at 37˚C/98˚F. It can also convert the measurement results to those measured at 30˚C/80˚F or 25˚C/77˚F and output the converted results. However, only enzyme values can be converted.

- **Coefficient of Correlation Correction**
  This function allows your results obtained by this device to match the results by another measurement method (reference lab method). Apply the regression equation Y = a X + b (X: measurement result of the SP-4430, Y: the result obtained by the reference method.) Enter coefficient values for a and b. For obtaining the coefficients of correlation correction for a and b, contact scil technical support.

→▲ is not printed when the upper limit of the standard range is the same or higher than the upper limit of the measurement range.

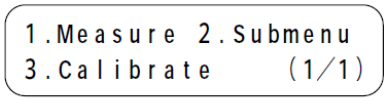
→▼is not printed when the lower limit of the standard range is the same or lower than the lower limit of the measurement range.

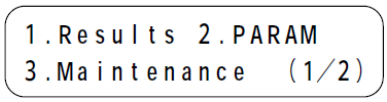
- **Standard Range**
  When the measurement results are printed, "▲" or "▼" is added on data out of the standard range. When sample type is set, its corresponding standard range is applied.

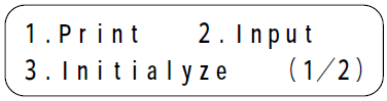
- **Calibration Conditions**
  Set the type (calibrator or magnetic card) and the number of times of calibration for each measurement item.

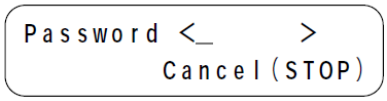
1. Display setting screen.

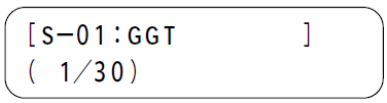
- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.
- Press [2] key. The PARAMETER MENU 1/2 is displayed.
- Press [2] key and the Password entering screen is displayed. Enter password "99".
- Press [ENTER] key. The Measurement item selecting screen is displayed.









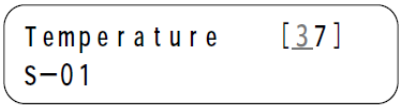


→ Besides [hyphen (-)] key, [0], [2], [4], [5], [6], and [8] keys can be used in selecting items.
[0] -> initially displayed item [2] -> last item
[4] -> previous item
[6] -> next item
[8] -> first item
[5] -> first item of the Multi Reagent Strip

2. Select measurement items.

- Select measurement items for parameters by pressing [hyphen (-)] key.

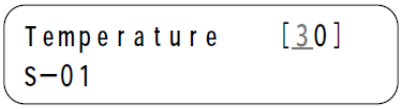
- Press [ENTER] key.
  The Temperature setting screen is displayed.



3. Set temperature.

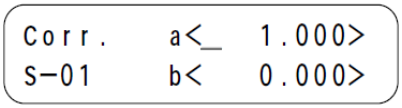
- Select the temperature from 37˚C 30˚C, and 25˚C by pressing [hyphen (-)] key.

  Note that items other than "enzyme" have only one choice of 37˚C.



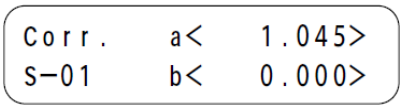
- Press [ENTER] key.

  The Coefficient factor setting screen is displayed.



4. Set coefficient factor.

- Enter the coefficient factor "a" by using the numeric keys. Any number from 0 to 10000 can be entered.



- Press [ENTER] key. The cursor moves to the entry position for "b".

- Enter a coefficient factor "b" and press [ENTER] key. Any number from -10000 to 10000 can be entered. Press [ENTER] key. The Calibration conditions setting screen is displayed.

→ To enter minus signs and decimal points, use [-/.] key.

→ If [-/.] key is pressed first, a minus sign is entered. To enter a decimal point, press [-/.] key after any number is entered. e.g.)

→To enter "-12"
Press [-/.] [1] [2]
Ex: to enter "3.4"
Press [3] [-/.] [4]

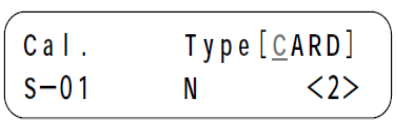
→ To enter ".5" press [0] [-/.] [5]. If [-/.] [5] are pressed, the result will be "-5".

→ When the wrong key is pressed, press the **MENU key and [-/.] key** simultaneously **to delete** the last entered character.

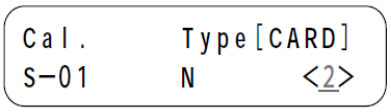
→ If [START] key is pressed, the initially displayed value is restored.

5. Set calibration conditions.

- Select "Cal." or "CARD" by pressing [hyphen (-)] key.
  CARD: Calibration by magnetic card. Cal.: Calibration by Calibrator



- Press [ENTER] key.
  The cursor moves to the entry position for the number of times of calibration. Any number from 2 to 6 (times) can be entered.



- Press [ENTER] key.

  The Standard range setting screen is displayed.

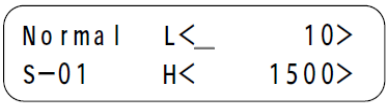
6. Set the standard range.

→When sample type is not set

→▲ is not printed when the upper limit of the standard range is the same or higher than the upper limit of the measurement range.

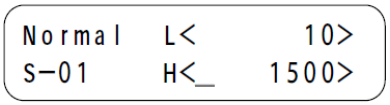
▼ is not printed when the lower limit of the standard range is the same or lower than the lower limit of the measurement range.

- Enter the lower limit of the standard range with the numeric keys.

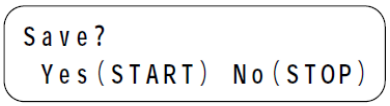


- Press [Enter] key.

  The cursor moves to the entry position for the upper limit value.



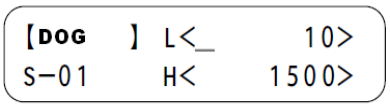
- Enter the upper limit value with the numeric keys.
  Press [Enter] key.
  The Entry check screen is displayed.

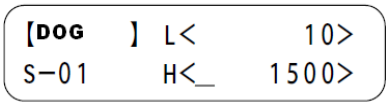


→To change Species ranges

→On the standard range entering screen, a sample type is displayed.

- The scil Spotchem EZ is set for dog, cat, horse and "other"
- Enter the lower limit value of the desired range for the species.



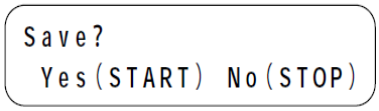


- Press [Enter] key to move the cursor to a place for the upper limit value.
- Enter the upper limit value with the numeric keys and press [Enter] key.

→When only 2 species ranges are set, the standard range entry for species slots 3 to 5 will be omitted.

- Similarly, set the standard range for sample types 2 to 5.

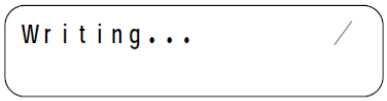
  The Entry check screen is displayed.



7. Store all the parameter settings.

- Press [START] or [STOP].

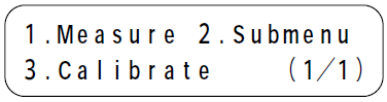
  If [START] key is pressed, the parameter settings are saved and the Measurement item selecting screen is restored.



- If [STOP] key is pressed, the setting is canceled and Measurement item selecting screen of procedure 1 is restored.

8. End setting.

- If the setting is finished, press [STOP] key three times to return to the MAIN MENU.

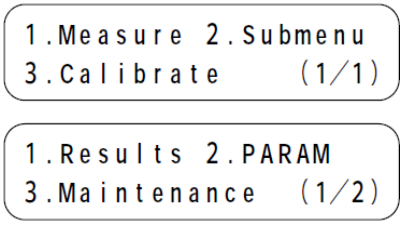


3-3-3 Initialize parameters

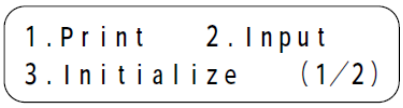
Initialize parameter settings to the factory setting values.

1. Display setting screen.

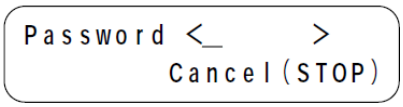
- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.



- Press [2] key.
  The PARAMETER MENU 1/2 is displayed.



- Press [3] key.
  The Password entering screen is displayed. Enter password “99”. is displayed.

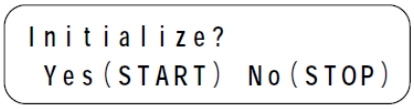


- Press [ENTER] key.
  The Measurement item selecting screen is restored.

2. Initialize parameters.

- Press [hyphen (-)] key to select a measurement item to initialize.

- Press [ENTER] key.
  The Initialize confirmation screen is displayed.



- Press [START] key or [STOP] key. If [START] key is pressed, parameters are initialized and the Measurement item selecting screen is restored.

  If [STOP] key is pressed, initialization is canceled and the Measurement item selecting screen is restored.

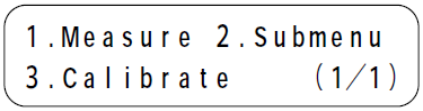
→Besides [hyphen (-)] key, [0], [2], [4], [5], [6], and [8] keys can be used in selecting items.

[0] -> initially displayed item [2] -> last item
[4] -> previous item
[6] -> next item
[8] -> first item
[5] -> first item of the Multi Reagent Strip

→If “ALL SINGLE” or “ALL MULTI” is selected, parameter settings of all the items for Single or Multi Regent Strips are printed out respectively.

3. End Initialization.

- If the initialization is finished, press [STOP] key three times to return to the MAIN MENU.



Factory setting values

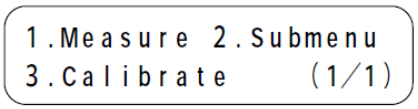
- The preset parameter settings can be printed out – see section “3-3-1 Print Parameters.”

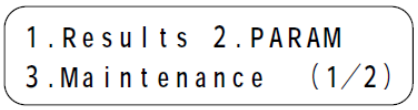
3-3-4 Changing Species Types

The scil Spotchem EZ comes with Dog, Cat, Equine and "Other" species pre-programmed with standard reference ranges. You may choose which species and which reference ranges to utilize.
The species are printed with the measurement results.
Maximum 5 different species ranges can be set.

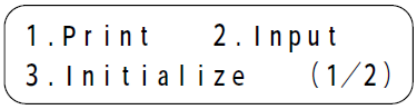
1. Display the screen.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.



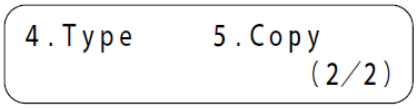


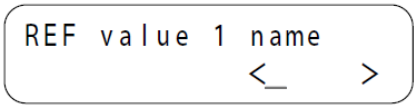
- Press [2] key.
  The PARAMETER MENU 1/2 is displayed.



- Press [Menu] key or [-] key.
- Press [4] key.

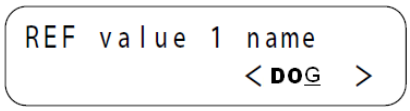
  The Sample type 1 name entering screen is displayed.





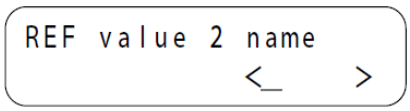
2. Enter the sample type.

- Maximum 5 letters can be entered using numbers, letters, and symbols.



- Press [Enter] key.

  The Sample type 2 name entering screen is displayed.



- Similarly, enter the sample types 2 to 5.

  When no sample type is set, press [Enter] key, with the space kept blank.

→The numeric keys and [-/.] keys can be used in selecting items. For example, to enter "Dog" [3][6][6][6][4]

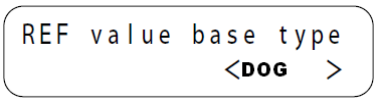
[0] key can be used to input the following 12 symbols which are
* ? # . , ; : ' - + / %

→To delete the name, press [-] key to make it blank. Press [Enter] key.

3. Setting the sample type to use on the basic setting.

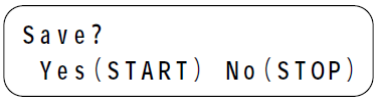
- In the end, set the sample type to use on the basic setting.

  The entered sample type is used as the sample type unless a different type is set at the time of measurement.



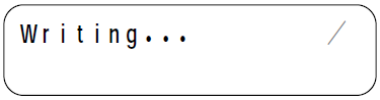
- Press [-] key to select sample type to use as the basic setting, and press [Enter] key.

  The Entry check screen is displayed.

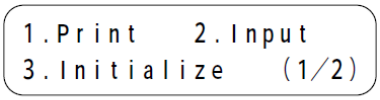


4. Saving the setting contents.

- Press [Start] key or [Stop] key. Pressing [Start] key saves the details of the setting, and returns the screen to the PARAMETER MENU 1/2.

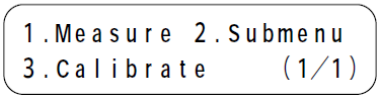


  If [Stop] key is pressed, the PARAMETER MENU 1/2 is restored without saving the setting contents.



5. End setting.

- Press [STOP] key twice to return to the MAIN MENU.

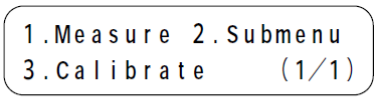


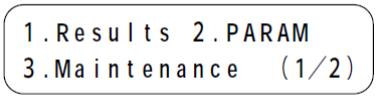
3-3-5 Copy standard range setting

The standard range setting for a certain species can be copied in all items to one for another sample type. Copy is available only when two or more sample types are input.

1. Display setting screen.

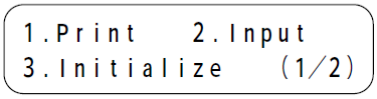
- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.



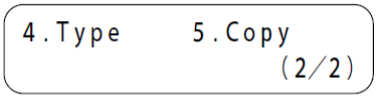


- Press [2] key.

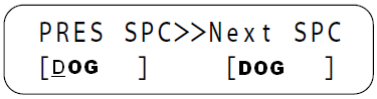
  The PARAMETER MENU 1/2 is displayed.



- Press [Menu] key or [-] key.

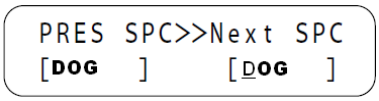


- Press [5] key.
  The Standard range setting copy screen will be displayed.
  The cursor is in the sample type on the original screen.



2. Selecting the standard range on the original screen.

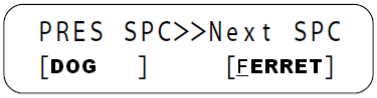
- Press [-] key to select the sample type for which the standard range is set on the original screen.



- Press [Enter] key.
  The cursor moves to the sample type on the duplicate screen.

3. Selecting the standard range of the duplicate screen.

- Press [-] key to select sample type on the duplicate screen for which the standard range setting is required.

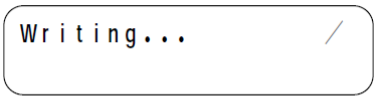


- Press [Enter] key.
  The Entry check screen is displayed.

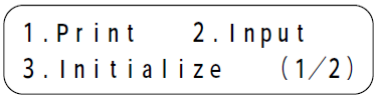
4. Saving the setting contents.

- Press [Start] key or [Stop] key.

  Press [Start] key to copy and save the standard range. The PARAMETER MENU 1/2 is restored.

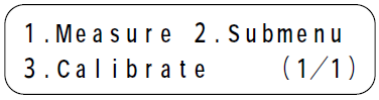


- Press [Stop] key to return the screen to the PARAMETER MENU 1/2, without duplicating the standard range.



5. End setting.

- Press [STOP] key twice to return to the MAIN MENU.



3-4 Maintenance

Proper maintenance is required to maintain the accuracy of the analyzer. Select “Maintenance” on the SUB MENU to perform either daily maintenance or periodical maintenance.

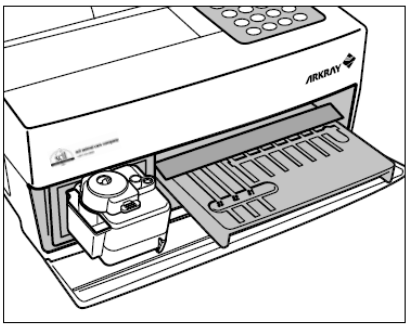
1. Preparation for the maintenance.

- Press [2] key on the MAIN MENU. SUB MENU1/2 is displayed.

```
1.Measure 2.Submenu
3.Calibrate      (1/1)
```

```
1.Results 2.PARAM
3.Maintenance    (1/2)
```

- Press [3] key.
  The Table Cover opens, and the Reagent Table and the Centrifuge Multi rack slide forward.



- When the message is displayed as shown on the right, turn off the power.

```
Ready.
Please turn off.
```

3. Perform maintenance.

- Perform maintenance of each part. (see “Chapter 4 MAINTENANCE”)

4. End maintenance.

- Turn ON the power. Warm-up starts, the Reagent Table and the Centrifuge Multi rack slide back to the original position, and the Table Cover closes.
- After the warm-up is completed, MAIN MENU is restored.

```
1.Measure 2.Submenu
3.Calibrate      (1/1)
```

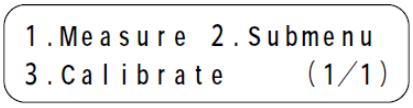
3-5 Mode Menu

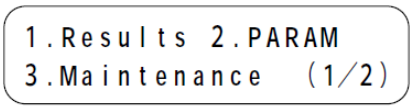
→The Survey Mode is canceled automatically when the power is turned off.

Switch to the Survey Mode. When measurement is performed in the Survey Mode, raw data as well as normal measurement results can be printed out (see 2-6 “Interpreting measurement results” for details of printouts).

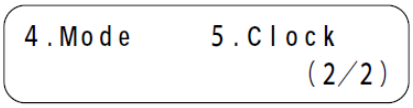
1. Display setting screen.

- Press [2] key on the MAIN MENU. SUB MENU1/2 is displayed.





- Press [MENU] key or [-/.] key. SUB MENU 2/2 is displayed.



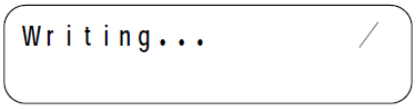
- Press [4] key.
  The MODE MENU is displayed.

- Press [1] key.
  The Survey mode setting screen is displayed.

2. Switch to Survey Mode.

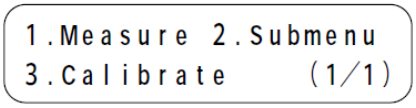
- Press [hyphen (-)] key.
  Turn ON the Survey Mode.

- Press [ENTER] key.
  The message “Writing...” is displayed and the MODE MENU is restored.



3. End Survey Mode.

- If the setting is finished, press [STOP] key three times to return to the MAIN MENU.

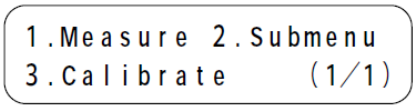


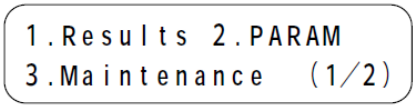
3-6 Built-in Clock Adjustment

Set the date and time of the built-in clock. Once the date and time are set, resetting is not necessary. However, resetting may be necessary over time with daylight savings.

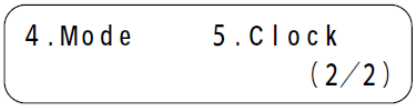
1. Display setting screen.

- Press [2] key on the MAIN MENU. SUB MENU1/2 is displayed.

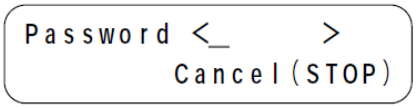




- Press [MENU] key or [-/.] key. SUB MENU 2/2 is displayed.

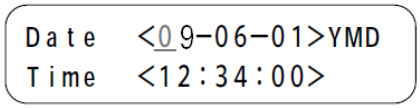


- Press [5] key. The Password entering screen is displayed. Enter password "99" is displayed on the screen.



- Press [ENTER] key.

  The Clock adjustment screen is displayed.



2. Set the date and time.

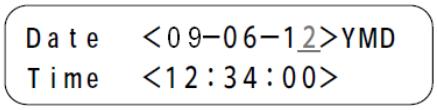
→If [STOP] key is pressed during operation, the setting is canceled and the SUB MENU 2/2 is restored.

→If [START] key is pressed, the initially displayed value is restored.

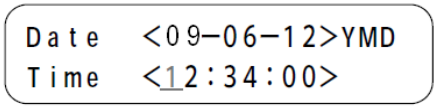
→If [STOP] key is pressed during operation, the setting is canceled and the date setting is restored.

→For the time settings, only the hour and minute can be set. The cursor does not move to the second position.

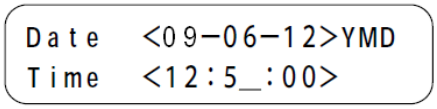
- Enter the present date by sliding the cursor with [hyphen (-)] key.



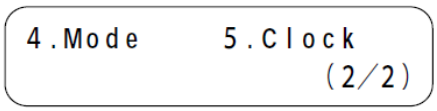
- Press [ENTER] key. The cursor moves to the time entry position.



- Enter the present time by sliding the cursor with [hyphen (-)] key.

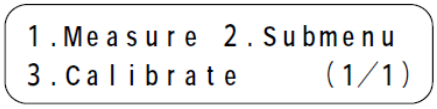


- Press [ENTER] key. The set date and time are stored, and the SUB MENU 2/2 is restored.



3. End Setting

- Press [ENTER] key. The set date and time are stored, and the SUB MENU 2/2 is restored.



Chapter 4
MAINTENANCE

Proper maintenance is required to maintain satisfactory measurement.
This chapter describes maintenance and replacement of consumables.

4-1 Outline of Maintenance

4-1-1 Frequency of Maintenance

4-2 Daily Maintenance

4-2-1 Cleaning the Reagent Table
4-2-2 Cleaning the Tip Waste Case and Protective Cover

4-3 Periodic Maintenance

4-3-1 Replacement of Thermal Printer Paper
4-3-2 Cleaning the Optical Window
4-3-3 Cleaning the Nozzle
4-3-4 Replacement of Nozzle

4-1 Outline of Maintenance

4-1-1

Part of Analyzer	Cleaning Frequency	Section
Reagent Table	Daily	4-2-1
Black and White Plates	Monthly	4-2-1
Rubber Plate	Monthly	4-2-1
Tip Waste Case	Daily	4-2-2
Centrifuge Cover	Daily	4-2-2
Replace Printer Paper	When red line appears on both sides of printer paper	4-3-1
Optical Window	As directed	4-3-2
Nozzle	As directed	4-3-3
Replace Nozzle		4-3-4

4-2 Daily Maintenance

4-2-1 Cleaning the Reagent Table

With numerous measurements, residue of sample and Reagent Strips stay on the Reagent Table. When they are adhered to a new Reagent Strip, correct measurement results may not be obtained or Reagent Strips may be jammed inside.

Clean the Reagent Table daily after use to ensure that correct measurement results can be obtained all the time. Also, clean the black and white plates and the Rubber Plate monthly. If those plates are dusty, correct measurement results may not be obtained. Refer to the next page for cleaning procedures. Perform occasional cleaning between measurements if necessary.

Requirements **Cleaning set (brush , cotton swabs), Distilled water and Protective gloves**

WARNING

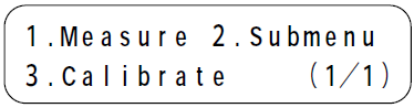
Wear protective gloves where exposure to pathogenic microbes is possible.

CAUTION

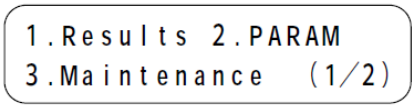
Discard used samples, cups and tips according to your local regulations on biological waste.

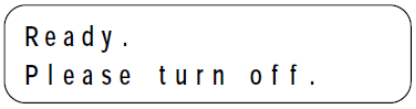
1. Slide the Reagent Table forward.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.



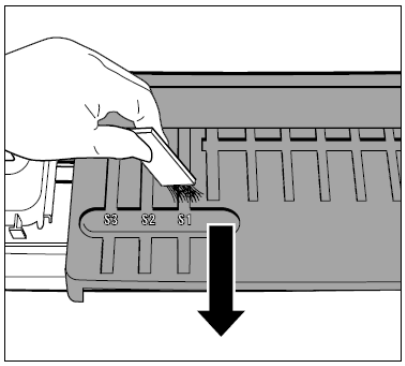
- Press [3] key. The table cover opens, and the reagent table and the centrifuge multi rack slide forward.





2. Clean the Reagent Table.

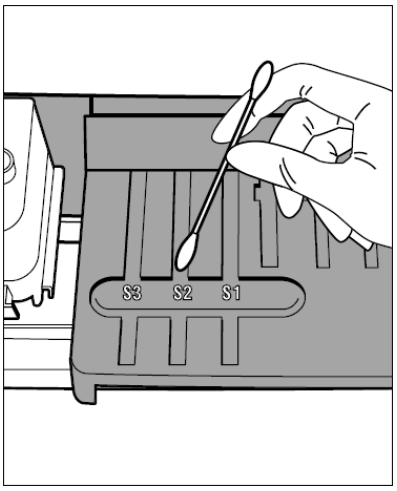
- Brush dust off the reagent table with provided cleaning brush towards you. Be sure to brush dust towards you and NOT into the analyzer. Otherwise malfunctions can occur.



- Moisten a cotton swab with distilled water and wipe out stains or dust adhered to the reagent table. Clean the groove well carefully, not to break the lugs on the tip of the groove.

- If the reagent table is wet, wipe using a dry cotton swab. If any fiber is remained on the reagent table, brush it off with the cleaning brush again. Do not spill water on the analyzer to avoid damage.

- Wipe out dust adhered to the table pins with a cotton swab.



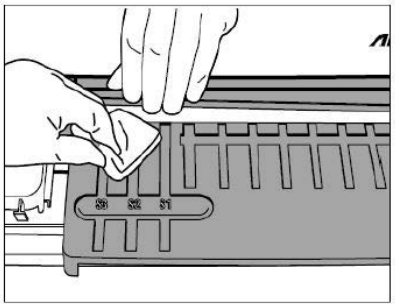
Cleaning the black and white plates (Monthly)

NOTE The black and white plates are reflectors to measure standard values of reflectivity measurement. Be careful not to leave grease or scratch the plates by touching them with bare hands. Otherwise, correct measurement results may not be obtained.

- Requirements: soft cloth (cloth for eyeglasses is preferable).

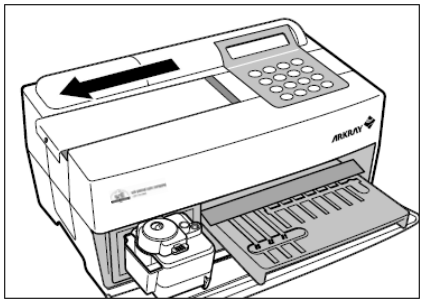
- Carefully wipe out stains or dust adhered to the black and white plates with a soft cloth.

- Do NOT try to blow dust away with your breath, which may cause fogging of the plates. Use a soft cloth, a brush, or a camera blower.

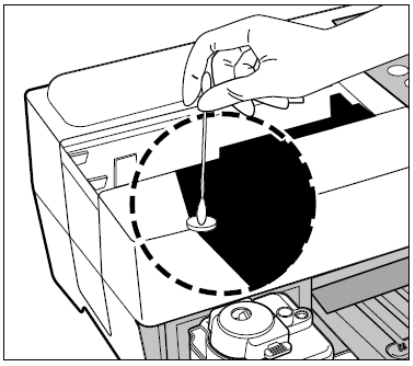


3. Clean the Rubber Plate Monthly

Remove the top cover by sliding it to the left.



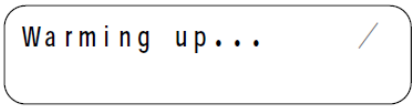
- Moisten a cotton swab with distilled water and wipe out stains or dust adhered to the Rubber Plate.



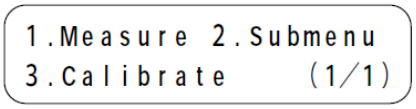
- If the Rubber Plate is wet, use a dry cotton swab to dry.
- Attach the top cover by sliding to the right.

4. End cleaning.

- Turn ON the power. Warm-up starts and the Reagent Table and the Centrifuge Multi Rack slide back to the original position and the Table Cover closes.



- If the operation is completed, turn OFF the power after the MAIN MENU is displayed.



4-2-2 Cleaning the Tip Waste Case and Protective Cover

The tip waste case holds used tips. Its capacity is for 5 measurements. Discard used tips as needed and wash the tip waste case. Clean the centrifuge cover as directed weekly. A message suggesting the disposal of used tips is displayed every 5 measurements.

Requirements **Alcohol, Cloth and Protective gloves**

WARNING

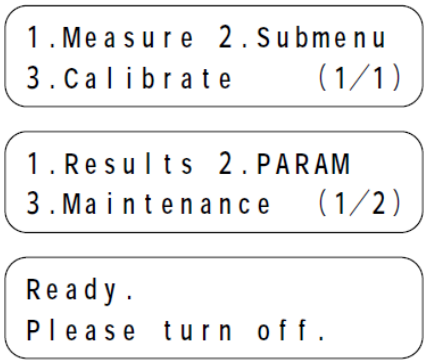
Wear protective gloves where exposure to pathogenic microbes is possible.

CAUTION

Discard used samples, cups and tips according to your local regulations on biological waste.

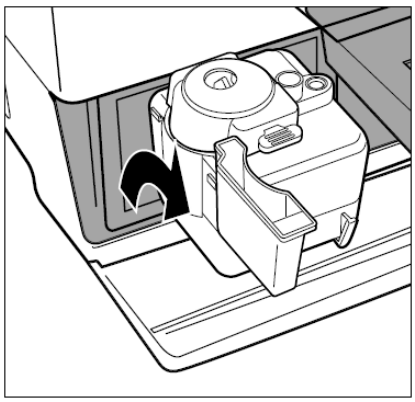
1. Slide the Centrifuge Multi Rack forward.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.
- The Table Cover opens and the Reagent Table and the Centrifuge Multi Rack slide forward.



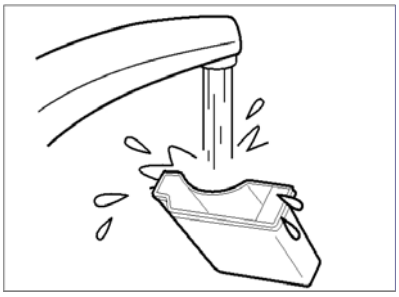
2. Discard Tips.

- Remove the Tip Waste Case from the Centrifuge Multi Rack.
- Discard tips.



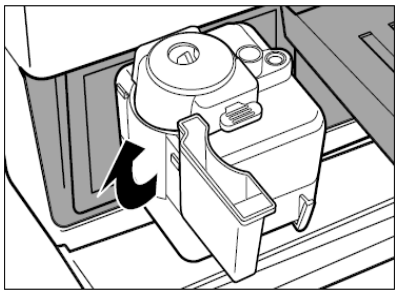
3. Disinfect and wash the Tip Waste Case.

- Disinfect the Tip Waste Case with alcohol and wash it with tap water.
- Wipe it dry with a cloth.



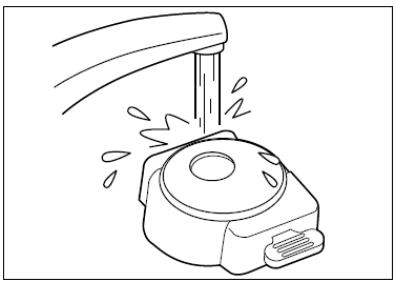
4. Reattach the Tip Waste Case.

- Put the Tip Waste Case into the Centrifuge Multi Rack.



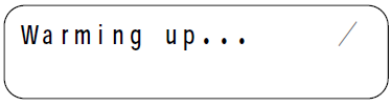
5. Disinfect and wash the Protective Cover.

- Disinfect the Protective Cover with disinfectant or alcohol and rinse with tap water.
- Wipe it dry with a cloth.

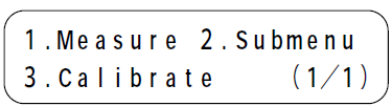


6. End cleaning.

- Turn ON the power.
  Warm-up starts. The Reagent Table and Centrifuge-equipped Multi Rack slide back to the original position and the Table Cover closes.



- If the operation is completed, turn OFF the power after the MAIN MENU is displayed.



4-3 Periodic Maintenance

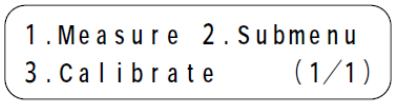
4-3-1 Replacement of Thermal Printer Paper

When the printer paper runs out, a red line appears on both sides of the printer paper. If the line is seen, replace it with a new roll. Approximately 500 measurements can be printed out on one roll of paper.

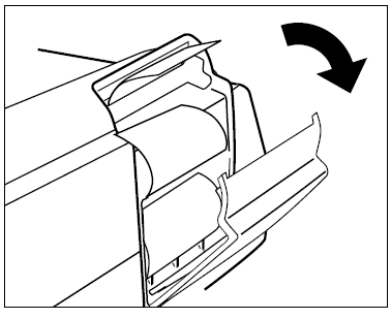
Requirements	**New thermal printer paper roll and Scissors**

1. Cut printer paper.

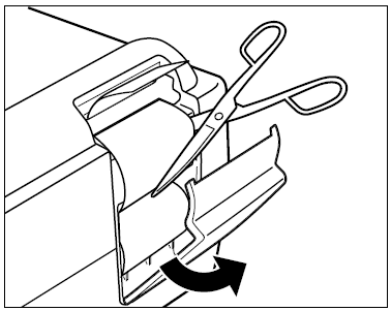
- Make sure the MAIN MENU is displayed.



- Open the printer cover.

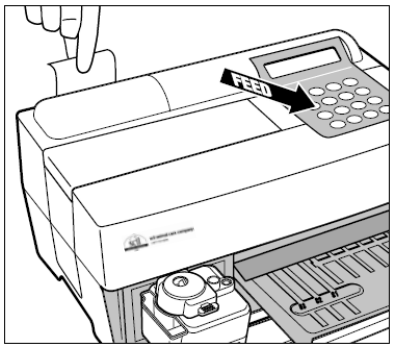


- If paper remains in the printer, cut It off with scissors and remove the remaining paper.
  If no paper remains in the printer, remove the tube and proceed to Step 3.



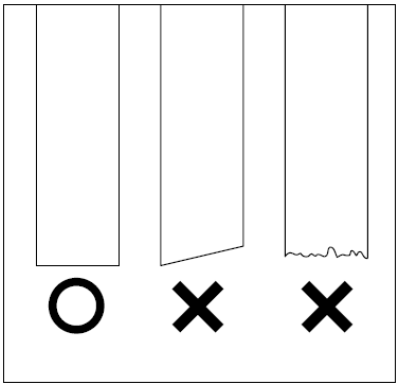
2. Removing the remaining paper.

- Press the [FEED] key. Pick up and remove the remaining paper as it is fed out.



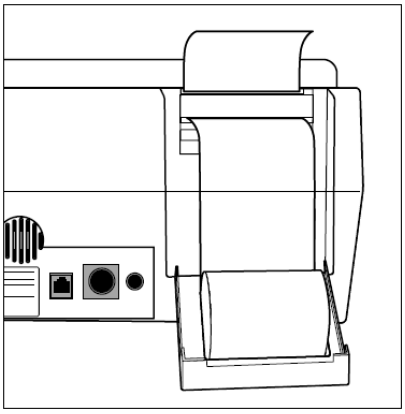
3. Prepare new printer paper.

- Cut off a single turn of the paper of new roll. Cut the top end straight to avoid a paper jam.



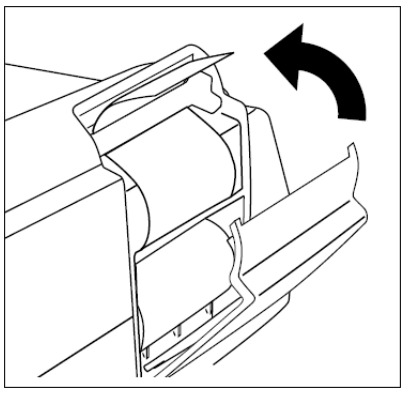
4. Set new printer paper.

- **Place a new roll of paper in the** paper holder, with the paper end facing up.
- **Insert the top of the paper end into the slot. The paper starts to be rolled and fed automatically.**
- Press [FEED] key once. The printer is ready for printing.



5. Close the printer cover.

- Close the printer door until it clicks into place.



→To make the printer ready for printing, press [FEED] key.

Be careful not to touch the paper cutter to avoid injury.

4-3-2 Cleaning the Optical Window

If dust is adhered to the Optical Window, correct measurement result may not be obtained due to improper detection of reflect on light caused by fluctuation of wavelength. Clean the Optical Window as needed or as directed by scil technical assistance.

Requirements Cotton swab and protective gloves

WARNING

Wear protective gloves where exposure to pathogenic microbes is possible.

CAUTION

Discard used samples, cups and tips according to local regulations on biological waste.

1. Move the Nozzle to stand-by position.

- Press the [2] key on the MAIN MENU. SUB MENU 1/2 displayed.

```
1.Measure 2.Submenu
3.Calibrate     (1/1)
```

- Turn OFF the power.

```
1.Results 2.PARAM
3.Maintenance   (1/2)
```

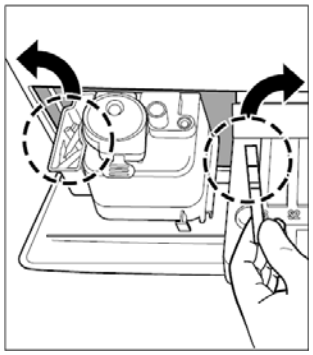
```
Ready.
Please turn off.
```

CAUTION

Make sure the power is OFF before moving on to the next procedure. Otherwise, it may cause injury by contacting with the driving unit of the analyzer.

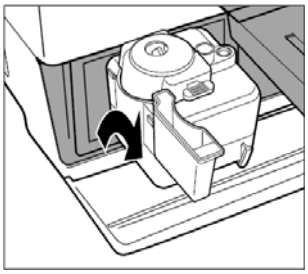
NOTE

Make sure that all used reagent strips, samples and tips are removed.

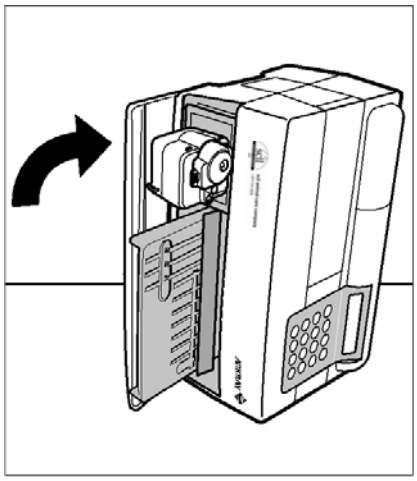


2. Lay the analyzer on its side.

- Remove the tip waste case from the Centrifuge Multi Rack.



- Turn over the analyzer carefully so That the right side (to which small Cushioning pads are attached) faces down. Do NOT hold the table cover while turning the analyzer.

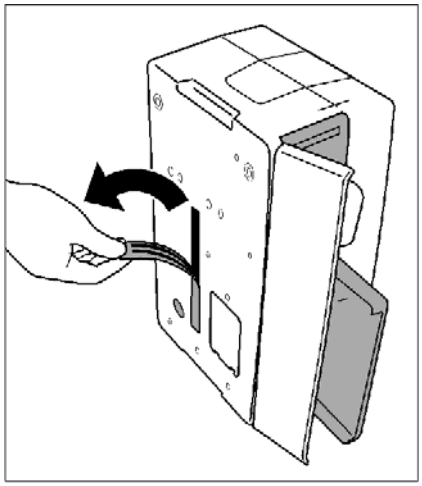


NOTE

Do NOT damage the connecting part of the Table Cover.
Be careful not to tip over the analyzer to avoid damage.

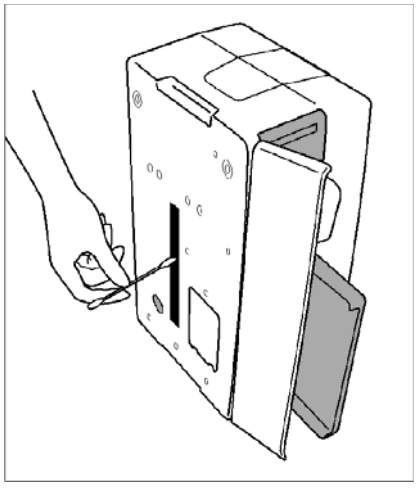
3. Clean the Optical Window.

- Remove the rubber cap on the bottom of the analyzer.



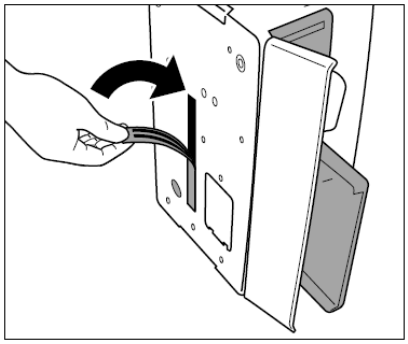
- Using a flashlight, wipe out stains and dust adhered to the Optical Window (transparent glass plate) with a dry cotton swab.

- Using a flashlight, check the Optical Windows are clean, dust-free and streak free.

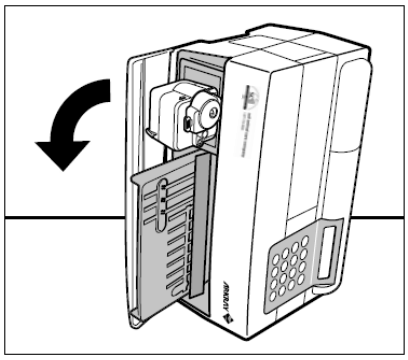


4. Restore the analyzer.

- Reattach the rubber caps firmly to the bottom of the analyzer.

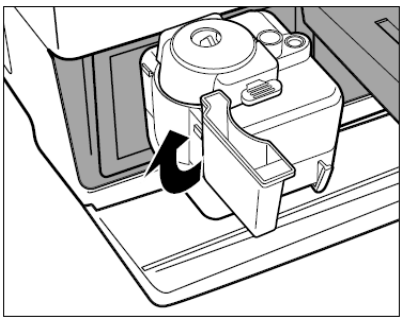


- Carefully turn over the analyzer to the original position without holding the table cover.

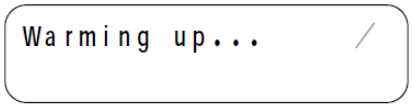


5. End cleaning.

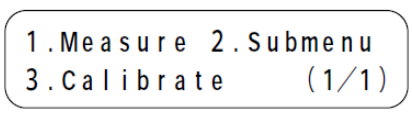
- Attach the Tip Waste Case to the Centrifuge Multi Rack.



- Turn ON the power.
  Warm-up starts. The Reagent Table and Centrifuge Multi Rack slide back to the original position and the Table Cover closes.



- When the operation is completed, turn OFF the power after the MAIN MENU is displayed.



4-3-3 Cleaning the Nozzle

Blood residue can build up inside the Nozzle and can interfere with measurements and cause clogging. Clean the Nozzle as needed or as directed by scil technical assistance to prevent complications and inaccurate results.

Requirements **Nozzle cleaning wire, Tweezers, Kimwipes or other similar wipes and Protective gloves**

⚠WARNING

Wear protective gloves where exposure to pathogenic microbes is possible.

⚠CAUTION

Discard used samples, cups and tips according to your local regulations on biological waste.

1. Move the Nozzle to stand-by position.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.

```
1.Measure 2.Submenu
3.Calibrate     (1/1)
```

- Press [3] key. The Table Cover opens, and the Reagent Table and Centrifuge-equipped Multi Rack slide forward. The Nozzle Driving Unit moves to the left end in the analyzer.

```
1.Results 2.PARAM
3.Maintenance   (1/2)
```

```
Ready.
Please turn off.
```

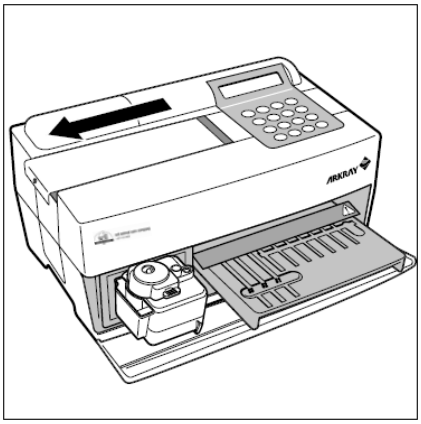
- Turn OFF the power.

⚠CAUTION

Make sure the power is OFF before moving on to the next procedure. Otherwise, it may cause injury by contacting with the driving unit of the analyzer.

2. Remove the cover.

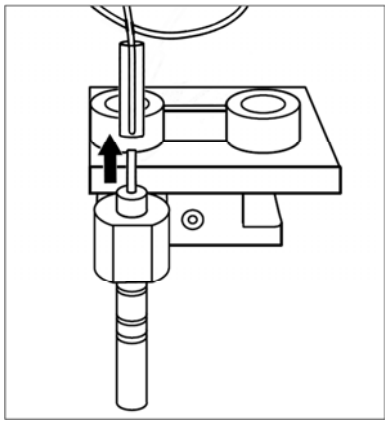
- Remove the top cover by sliding it to the left.



- Remove the side cover.

3. Remove the Nozzle Tube.

- Remove the Nozzle Tube from the Nozzle using tweezers.

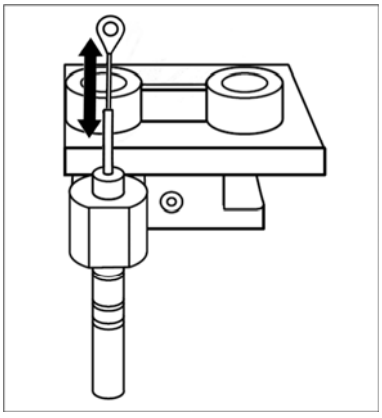


NOTE

Do NOT scratch, kink or damage the Nozzle Tube.

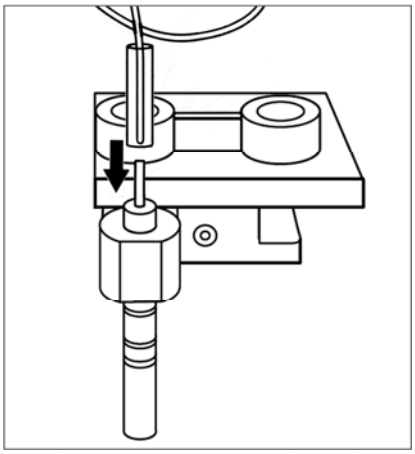
4. Clean the Nozzle.

- Insert the nozzle cleaning wire into the Nozzle until its tip appears from the other end.
- Clean the inside of the Nozzle by moving the wire up and down a couple of times gently.
- Wipe out any dust coming out of the tip of the Nozzle with tissue paper.



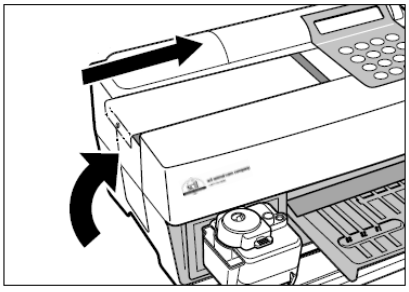
5. Insert the Nozzle Tube.

- Remove the nozzle cleaning wire from the Nozzle.
- Pinch the Nozzle Tube with tweezers and insert it into the tube joint.
- Gently wipe the O ring with a Kim wipe.



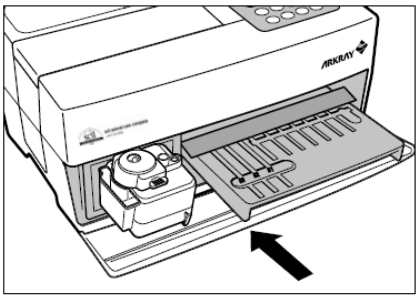
6. Reattach the covers.

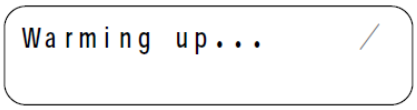
1. Put the side cover to the analyzer.
2. Attach the top cover by sliding to the right.

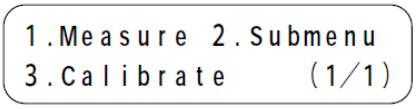


7. End Cleaning.

- Turn ON the power.
  Warm up starts. The Reagent Table and Centrifuge Multi Rack Slide back to the original position And the Table Cover closes.







NOTE

Make sure the maintenance cover is closed before turning on the power.

4-3-4 Replacement of Nozzle

With numerous measurements, the O-ring attached to the Nozzle can deteriorate necessitating replacement.

Requirements **Nozzle, Nozzle replacement tool and Protective gloves**

WARNING

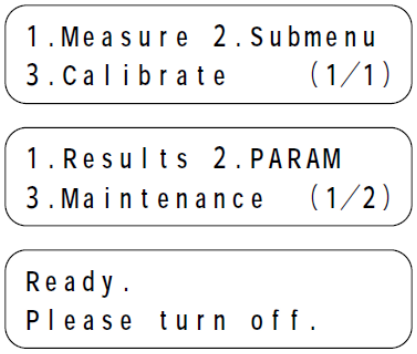
Wear protective gloves where exposure to pathogenic microbes is possible.

CAUTION

Discard used samples, cups and tips according to your local regulations on biological waste.

1. Move the Nozzle to stand-by position.

- Press [2] key on the MAIN MENU. SUB MENU 1/2 is displayed.
- Press [3] key. The Table Cover opens, and the Reagent Table and Centrifuge-equipped Multi Rack slide forward. The Nozzle Driving Unit moves to the left end in the analyzer.
- Turn OFF the power.



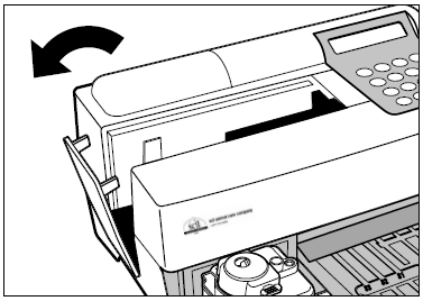
CAUTION

Make sure the power is OFF before moving on to the next procedure. Otherwise, it may cause injury by contacting with the driving unit of the analyzer.

2. Remove the cover.

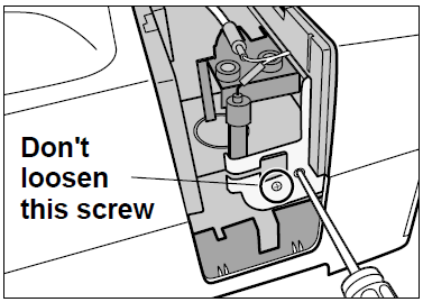
- Remove the screw fixing the maintenance cover.
- Remove the top cover by sliding to the left.

- Remove the side cover.



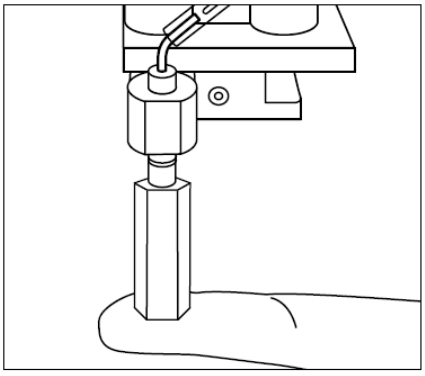
3. Remove the Tip Waste Case.

- Loosen the fixing screws and remove the tip ejector.
- Remove the tip waste case.

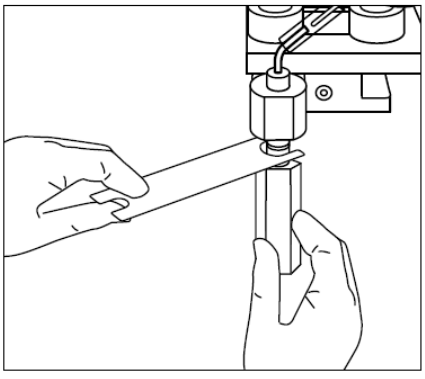


4. Replace the Nozzle.

- Fasten the upper part using the narrow side of the wrench.
- Insert the adapter from the bottom and rotate it using the wide side of the wrench.

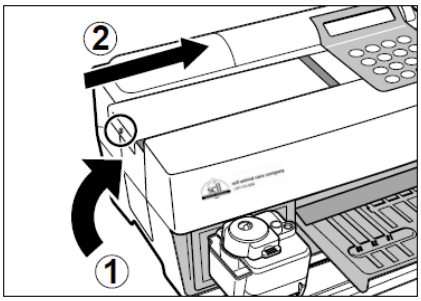


- Attach a new Nozzle and fasten it lightly by hand.
- Tighten it firmly using two wrenches.



5. Reattach the Tip Waste Case.

- Put the Tip Waste Case by tightening the screws.



6. Reattach the covers.

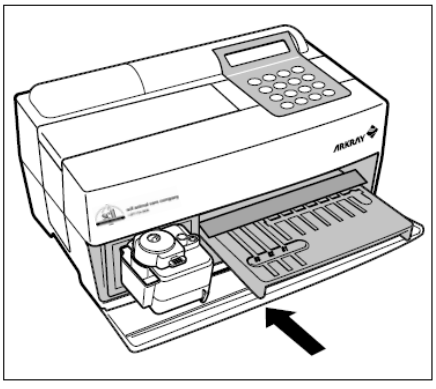
1. Put the side cover to the analyzer.
2. Put the top cover to the analyzer by sliding it to the right.

NOTE

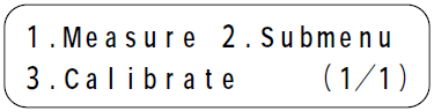
Before turning power ON, make sure maintenance cover is back on.

7. End replacement.

- Turn ON the power. Warm-up starts. The Reagent Table and Centrifuge Multi Rack slide back to the original position and the Table Cover closes.



- When the operation is completed, turn OFF the power after the MAIN MENU is displayed.



Chapter 5
TROUBLESHOOTING

This chapter describes the kinds of errors and problems you may encounter with use of the scil Spotchem EZ, what their causes can be and solutions.

Whenever you are unable to remedy a situation or have questions about your analyzer, do not hesitate to contact **scil technical services for assistance at 877-724-5838.**

5-1 Error Messages

5-2 Trouble Messages

5-1 Error Messages

When an error occurs, an alarm sounds and the error message appears on the screen.
The error message is automatically printed in order to preserve the error record (The following errors are only displayed, and not printed).

●The following errors are not printed when the magnetic card is inserted.
E15 No MEAS data
E21 Card misread
E24 Wrong card
E25 Wrong stripe

Description and error message	Conditions and causes	Remedy
E02 E02 Cover open OK(ENTER) (T) : Trouble with the table cover. (M) : Trouble with the maintenance cover.	● The table cover was opened during measurement or warm-up. ● The maintenance cover was opened during measurement or warm-up. ● The table cover is not properly closed (Foreign matter is jammed). ● The measurement was started without closing the maintenance cover.	● Close the table cover correctly (Remove the foreign matter). ● Set the maintenance cover in the correct position.
E03 E03 Power down OK(ENTER)	● Power failure has occurred during measurement. ● Power was turned off during measurement. ● The power cable was unplugged during measurement.	● The last measurement was invalid. Restart measurement.
E04 E04 LED unstable OK(ENTER)	● A light source is deteriorated.	● If the same trouble occurs, contact scil technical services.
E05 E05 Optical error (9 6 2) OK(ENTER) (1 ～ 9) : Channels with abnormalities	● The white and black plate or window plate is dirty. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Clean the white and black plate or window plate (see “4-2-1 Cleaning the Reagent Table” and “4-3-2 Cleaning the Optical Window”).
E11 E11 No strips (M) OK(ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with no Reagent Strip in either case. Display is made only in calibration. Usually nothing is displayed during measurement.	● Reagent Strip is not set. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. ● The Reagent Strip is not set in the channel necessary for calibration. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Set Reagent Stripes correctly. ● When calibrating, set the necessary numbers.

Description and error message	Conditions and causes	Remedy
E13 E13 Wrong strips (87) OK (ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with a different Reagent Strip in either case.	● When calibrating by calibrator kit, a many Reagent Strip is set. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. ● Before calibration of an item is completed, another item was attempted to be calibrated. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Set the Reagent Strip correctly. ● Return to the menu because the changing item is not allowed during calibration by calibrator kit.
E14 E14 Used strips (9) OK (ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with used Reagent Strip in either case.	● Used Reagent Strip is already used. ● The reagent pad is colored because of old Reagent Strips or inappropriate preservation. ● The reagent pad is dirty. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Use a new Reagent Strip. ● Set the Reagent Strip correctly.
E15 E15 No MEAS data (7 M) OK (ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with no information for measurement in either case. The error is not displayed when the magnetic card is inserted.	● A single card for the item to measure is not inserted. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. ● When this occurs in measurement with a Multi Reagent Strip, the multi card for a multi reagent is not inserted for measurement. ● A multi card for an item with no information for measurement is inserted. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Insert a magnetic card corresponding to the item. ● Set the Reagent Strip correctly.
E16 E16 No CAL data (7 M) OK (ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with no calibration information in either case.	● Wrong calibration card was inserted. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Insert the correct calibration card again (Hb is a different card). ● Set the Reagent Strip correctly.

Description and error message	Conditions and causes	Remedy
E17 E17 No sample (CNTRFG) OK(ENTER) Cuvette: when a curette is used for liquid level detection. CNTRFG: When a centrifuge vessel is used.	● A sample vessel is misplaced. ● There is no sample or an insufficient amount of sample. ● A centrifuge tube was used in calibration by calibrator kit. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Set the sample correctly. ● Confirm the amount of the sample.
E21 E21 Card misread OK(ENTER)	● The magnetic card was caught when inserted. ● The head of magnetic card reader is dirty.	● Insert the magnetic card again. ● Clean the head of the magnetic card reader.
E24 E24 Wrong card OK(ENTER)	● Wrong magnetic card was used (a calibration card was inserted when the display showed the Reagent Card reading or vice-versa).	● Insert a correct magnetic card.
E25 E25 Wrong stripe OK(ENTER)	● The same stripe was inserted.	● Insert a different stripe.
E30 E30 Abnormal data (L1 3) OK(ENTER) PR : Prozone error L 1 : Large difference between the measured and the displayed values of calibrator L. H 1 : Large difference between the measured and the displayed values of calibrator H. L 2 : Large variations between the measured values of calibrator L. H 2 : Large variations between the measured values of calibrator H. LH : No difference between the measured value of calibrator L and that of calibrator H. (1 ～ 6) : Channel with an error. The display is shown only in multi calibration, and nothing is displayed in single calibration.	● During calibration, the difference of the measured value and the display of calibrator is extremely large. ● The variations of the measured values are extremely large in calibration. ● Calibrator L and H might be set oppositely in calibration. ● Incorrect adjustment of calibrator.	● Perform measurement again.

Description and error message	Conditions and causes	Remedy
E31 E31 Wrong date/time OK(ENTER)	● The clock is not correctly adjusted. ● The power was not connected for a long time (battery is dead).	● Readjust the date and time. (see “3-6 Built-in Clock Adjustment”)
E32 E32 Invalid strips (7 M) OK(ENTER) (7 ～ 9) : Single type (M) : Multi type Channel with expired Reagent Strips in either case.	● The Reagent Strip has expired. ● The clock is not correctly adjusted. ● The clock is not correct because the power was not connected for a long time. ● When using a Reagent Strips from new lot, the corresponding magnetic card to the lot of the was not inserted.	● Use a new Reagent Strip. ● Adjust the clock. ● Insert a new magnetic card.
E33 E33 Stray light OK(ENTER)	● External light entered because the table cover or maintenance cover was slightly opened.	● Close the table cover or the maintenance cover firmly. ● Change the direction of the analyzer.
E34 E34 BAR misread (987) OK(ENTER) (7 ～ 9) : Single type Channel which was misread.	● The table is dirty. ● The bar code was not correctly read due to displacement or bending of the Reagent Strip. ● Foreign matter is attached to the Single Reagent Strip. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Remove dust from the table. ● Reset the Single Reagent Strip correctly. ● Confirm that foreign matter is not attached to the Single Reagent Strip.
E35 E35 BCR error OK(ENTER)	● The setting (such as baud rate) of the hand-held bar code reader is incorrect. ● The hand-held bar code reader is not correctly connected.	● Confirm the setting of the hand-held bar code reader (such as baud rate). ● Connect the hand-held bar code reader correctly.
E36 E36 Battery error OK(ENTER)	● Battery is exhausted.	● Charge the battery.

Description and error message	Conditions and causes	Remedy
E37 E37 Sampling error OK(ENTER)	● When sampling, air bubbles or fibrin was aspirated. ● When sampling, the sample amount was insufficient. **⚠WARNING** **Wear protective gloves in order to avoid exposure to pathogenic microbes.**	● Remove air bubbles or fibrin. ● Confirm the sample amount.
E38 E38 Tip case not set OK(ENTER)	● Forgot to set the Tip Waste Case. ● The Tip Waste Case is not correctly set.	● Set the Tip Waste Case correctly.
E39 E39 Communication OK(ENTER)	● The cable is not connected. ● The setting (e.g. baud rate) of the connected device (such as PC) is incorrect.	● Connect the cable correctly. ● Confirm the setting (e.g. baud rate) of analyzer connections (e.g. PC).
E40 E40 Sample drop (7 4 1) OK(ENTER) (1～9) : Channels with abnormalities	● Failed to draw the sample and drop it to the reagent correctly due to lack of sample amount or absorbing fibrin. ● Failed to drop the sample to the reagent correctly because the sample adheres around the dropping hole.	● Check the sample amount and remove fibrin if necessary. ● Wipe off the sample adhered to around the dropping hole. ● Measure it with a different tip.
E90 E90 Memory:results OK(ENTER)	● The memory storing the measured results is defective. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs often, **contact scil technical services.**
E91 E91 Memory:history OK(ENTER)	● The memory storing the trouble history is detective. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs often, **contact scil technical services.**
E92 E92 Memory:setup OK(ENTER)	● The memory storing the setup data is defective. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs often, **contact scil technical services.** ● As the user setting value is initialized or is returned to the last measured value, reset it (re-enter it).

5-2 Trouble Messages

When a trouble occurs, an alarm sounds, and a trouble message is displayed. The trouble message is automatically printed in order to preserve the trouble record.

IMPORTANT When a trouble occurs during measurement, perform the measurement again. It may have influenced the result obtained before the trouble occurred. Perform the measurement again if the result is defective.

Description and trouble message	Conditions and causes	Remedy
T03 T03 Tube pressure OK(ENTER)	● The pressure does not increase since the rubber plate is dirty or deformed. ● The tube or pipe is clogged. ● The tube connecting the nozzle with the pump is disconnected. ● The tube connecting the pump with the pressure-detecting sensor is disconnected.	● Clean the rubber plate. ● Check the tube. ● If the same trouble occurs, contact **scil animal care.**. (NOTE: in cases where the abnormality is detected when the power switch is turned on, it is necessary to turn on the power again after maintenance because the measurement could not be started).
T04 T04 Temp control OK(ENTER)	● The temperature inside the analyzer became too high because the fan had stopped. ● The temperature outside exceeds the range (10 ～ 30℃) suitable for operation.	● Confirm if the fan is rotating. ● Confirm the temperature outside. ● If the same trouble occurs, contact **scil animal care.**. (NOTE: in cases where the abnormality is detected when the power is turned on, it is necessary to turn on the power again because the measurement cannot be started).
T05 T05 Nozzle U/D OK(ENTER)	● Trouble occurred at the nozzle up-down driving mechanism (hit an obstruction when it moved downward or it was caught in the upward-movement).	● Turn on the power again. ● Confirm that there is no obstruction. ● If the same trouble occurs, contact **scil technical services.**
T06 T06 Nozzle L/R OK(ENTER)	● Trouble occurred in the nozzle right-left driving.	● Turn on the power again. ● Confirm that there is no obstruction. ● If the same trouble occurs, contact **scil technical services.**
T07 T07 Reagent table OK(ENTER)	● The table cannot function because a Reagent Strip is caught in the gap in the table. ● The Reagent Strip table cannot function because there is an obstruction in front of the table cover.	● Turn on the power again. ● Remove the obstruction, if any. ● Confirm that there is no obstruction in front of the table cover. ● If the same trouble occurs, contact **scil technical services.**

Description and trouble message	Conditions and causes	Remedy
T09 T09 Pump OK(ENTER)	● Trouble occurred in the pump-driving mechanism.	● Turn on the power again. ● If the same trouble occurs, contact scil technical services.
T12 T12 Optical gain OK(ENTER)	● The optimal gain could not be set.	● Turn on the power again. ● If the same trouble occurs, contact your scil animal care. (: If measurement is started though trouble is detected when the power turned on, trouble occurs at the start of measurement, and the measurement cannot be performed).
T13 T13 Calculation OK(ENTER)	● Trouble occurred in the internal calculation operation.	● If the same trouble occurs, contact scil technical services.
T14 T14 LED intensity (Low) OK(ENTER) (High): the case in which the counted value is greater than the setup range. (Low): the case in which the counted value is smaller than the setup range.	● LED is not lit. ● LED is deteriorated.	● Turn on the power again. ● If the same trouble occurs, contact scil technical services.
T17 T17 Device error (SUB) OK(ENTER) (PMC): When trouble occurs on the PMC. (SUB): When trouble occurs on the sub-CPU.	● Trouble occurred in an electrical component.	● Turn on the power again. ● If the same trouble occurs, contact scil technical services.
T20 T20 Tip picking OK(ENTER)	● Forgot to set tips. ● Failure in setting tip mount.	● Set the tip.

Description and trouble message	Conditions and causes	Remedy
T21 T21 Tip ejecting OK(ENTER)	● Failure to discard tip.	● Turn off the power, and remove the tip from the nozzle.
T25 T25 Barcode sensor (8 5 3) OK(ENTER) (1- 5, 7- 9) :Channels with abnormalities	● White plate or black plate is dirty.	● Clean the white plate or black plate. (Note: the case in which trouble is detected when the power is turned on, it is necessary to turn on the power again after maintenance since measurement cannot be started).
T27 T27 Centrifuge OK(ENTER) (Cover) :Protective cover is not attached (Position) :Stop position is not correct	● The rotating rate of centrifuge is defective. ● It cannot rotate due to an obstruction around the centrifuge. ● Forgot to set centrifuge tube. ● Protective cover is not properly attached.	● Remove the obstruction around the centrifuge. ● Turn on the power again. ● If the same trouble occurs, contact scil technical services. ● Set the centrifuge tube. ● Attach the protective cover properly.
T28 T28 Centrifuge F/B OK(ENTER)	● Trouble occurred in the centrifuge front-back driving mechanism. ● It cannot operate because of an obstruction in the operating path of the centrifuge base.	● Turn on the power again. ● Confirm that there is no obstruction. ● If the same trouble occurs, contact scil technical services.
T90 T90 Memory:product OK(ENTER)	● Trouble with product information memory storage. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs, contact scil technical services.
T91 T91 Memory:mechanism OK(ENTER)	● Trouble with mechanism information memory storage. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs, contact scil technical services.
T92 T92 Memory:optical OK(ENTER)	● Trouble with optical system information memory storage. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs, contact scil technical services.

Description and trouble message	Conditions and causes	Remedy
T93 T93 Memory:parameter (S-03) OK(ENTER) (S- XX): Single type (M- XX): Multi type The parameter item number found defective in either case.	● Trouble with parameter memory storage. ● Power was cut while writing in memory or deleting.	● If the same trouble occurs, contact scil technical services.

INSTRUMENT WARRANTY

scil Spotchem EZ Chemistry Analyzer

Effective Date: December 2009

scil animal care company Inc. warrants that the scil Spotchem EZ chemistry analyzer will conform to the manufacturer's specifications and be free from defects in workmanship and materials for a period of 24 months from the date of shipment from scil animal care company. This warranty covers normal use only. scil will provide preventative maintenance as recommended by the manufacturer during the warranty period. The customer will be solely responsible for scheduling all maintenance procedures. scil is not responsible for warranty service should the product have been improperly maintained or should it fail to function properly as a result of misuse, abuse, neglect, damage caused by disasters such as fire, flood and lightening, improper electrical current or service by anyone other than a designated representative of scil. This warranty will not apply to any scil Spotchem EZ chemistry analyzer that has been altered in any way.

scil or its designated representative will provide warranty service. The repair will take place at scil's designated repair facility.

Warranty service includes non-consumable parts, labor and shipping. Specific terms include delivery of a loaner unit from the scil facility to the customer provided the repair is not done at the customer's location and a loaner instrument is available. For off-site repairs the customer will return the defective instrument to scil utilizing ground shipment. The defective instrument will be repaired by scil and returned to the customer via ground delivery. If a loaner unit has been provided, the customer will return the loaner unit to scil within two weeks (to include shipping time) of obtaining their repaired unit back. Any loaner instruments not returned to scil will be invoiced to the customer.

scil will, at its sole discretion determine whether equipment repairs are considered warranty repairs. In those situations where a unit has been returned or a technician dispatched and the repairs are determined by scil to be non-warranty repairs the customer will be responsible for parts, labor, travel charges, shipping and all other costs related to that unit. scil will assume no responsibility for any cost incurred by the customer for the shipment and/or repair of machines not qualifying for warranty service.

Except as specifically set forth above, there are no express or implied warranties, including the warranty of merchantability or fitness for a particular purpose, and the foregoing provisions of this agreement are in lieu of all other warranties expressed or implied. scil shall have no liability for incidental or consequential damages of any kind.